S. Hrg. 103–568

OPERATIONAL TESTING: ENSURING BETTER WEAPONS FOR OUR TROOPS

4. G 74/9: S. HRG. 103-568

erational Testing: Ensuring Bette...

HEARING

BEFORE THE

SUBCOMMITTEE ON FEDERAL SERVICES,
POST OFFICE, AND CIVIL SERVICE

OF THE

COMMITTEE ON
GOVERNMENTAL AFFAIRS
UNITED STATES SENATE

ONE HUNDRED THIRD CONGRESS

SECOND SESSION

MARCH 22, 1994

Printed for the use of the Committee on Governmental Affairs

SUPERINTENDENT OF DOCUMENTS
DEPOSITORY

AUG 4 1994

BOSTON PUBLIC LIBRARY
GOVERNMENT DOCUMENTS DEPARTMENT

U.S. GOVERNMENT PRINTING OFFICE

78–061 cc
WASHINGTON : 1994

For sale by the U.S. Government Printing Office
Superintendent of Documents, Congressional Sales Office, Washington, DC 20402
ISBN 0-16-044450-0

B

S. Hrg. 103–568

OPERATIONAL TESTING: ENSURING BETTER WEAPONS FOR OUR TROOPS

4. G 74/9: S. HRG. 103-568

rational Testing: Ensuring Bette...

HEARING

BEFORE THE

SUBCOMMITTEE ON FEDERAL SERVICES, POST OFFICE, AND CIVIL SERVICE

OF THE

COMMITTEE ON GOVERNMENTAL AFFAIRS
UNITED STATES SENATE

ONE HUNDRED THIRD CONGRESS

SECOND SESSION

MARCH 22, 1994

Printed for the use of the Committee on Governmental Affairs

SUPERINTENDENT OF DOCUMENTS
DEPOSITORY

AUG 4 1994

BOSTON PUBLIC LIBRARY
GOVERNMENT DOCUMENTS DEPARTMENT

U.S. GOVERNMENT PRINTING OFFICE
78–061 cc
WASHINGTON : 1994

For sale by the U.S. Government Printing Office
Superintendent of Documents, Congressional Sales Office, Washington, DC 20402
ISBN 0-16-044450-0

COMMITTEE ON GOVERNMENTAL AFFAIRS

JOHN GLENN, Ohio, *Chairman*

SAM NUNN, Georgia
CARL LEVIN, Michigan
JIM SASSER, Tennessee
DAVID PRYOR, Arkansas
JOSEPH I. LIEBERMAN, Connecticut
DANIEL K. AKAKA, Hawaii
BYRON L. DORGAN, North Dakota

WILLIAM V. ROTH, Jr., Delaware
TED STEVENS, Alaska
WILLIAM S. COHEN, Maine
THAD COCHRAN, Mississippi
JOHN McCAIN, Arizona
ROBERT F. BENNETT, Utah

Leonard Weiss, *Staff Director*
Franklin G. Polk, *Minority Staff Director and Chief Counsel*
Michal Sue Prosser, *Chief Clerk*

SUBCOMMITTEE ON FEDERAL SERVICES, POST OFFICE, AND CIVIL SERVICE

DAVID PRYOR, Arkansas, *Chairman*

JIM SASSER, Tennessee
DANIEL K. AKAKA, Hawaii

TED STEVENS, Alaska
THAD COCHRAN, Mississippi

Edward J. Gleiman, *Staff Director*
Patricia A. Raymond, *Minority Staff Director*
Nancy Langley, *Chief Clerk*

CONTENTS

Opening statements: Page
- Senator Pryor 1
- Senator Roth 5

WITNESSES

TUESDAY, MARCH 22, 1994

Colleen A. Preston, Deputy Under Secretary of Defense Acquisition Reform, Department of Defense 6
Louis J. Rodrigues, Director, Systems Development and Production Issues, National Security and International Affairs Division, U.S. General Accounting Office 20
Russell Murray, former Assistant Secretary of Defense 27

ALPHABETICAL LIST OF WITNESSES

Murray, Russell:
- Testimony 27
- Prepared statement 45

Preston, Colleen A.:
- Testimony 6
- Prepared statement 35

Rodrigues, Louis J.:
- Testimony 20
- Prepared statement 39

APPENDIX

Prepared statements of witnesses in order of appearance 35

Charts:
- Is Operational Testing Too Expensive? 49
- Fly Before You Buy—Percentage of Weapons Produced Before Operational Testing 50
- A Pentagon Priority? 51

OPERATIONAL TESTING: ENSURING BETTER WEAPONS FOR OUR TROOPS

TUESDAY, MARCH 22, 1994

U.S. SENATE,
SUBCOMMITTEE ON FEDERAL SERVICES,
POST OFFICE, AND CIVIL SERVICE,
COMMITTEE ON GOVERNMENTAL AFFAIRS,
Washington, DC.

The Subcommittee met, pursuant to notice, at 10:41 a.m. in room SD–342, Dirksen Senate Office Building, Hon. David Pryor, Chairman of the Subcommittee, presiding.

Present: Senators Pryor and Roth.

OPENING STATEMENT OF SENATOR PRYOR

Senator PRYOR. Ladies and gentlemen, our meeting will come to order. We want to welcome each of our witnesses this morning and our colleague, Senator Roth.

I have a statement that I am not going to take the time to read in its entirety. By the way, I do apologize for my lateness this morning. Another meeting was called and I had to attend it.

I would like to say that for about 10 years my colleague, Senator Roth of Delaware, and myself have been involved in promoting a concept of operational testing, testing weapons before we buy them. We call this fly before you buy. I would like to also state that since we have been involved on this issue for the past 10 years—I can't speak for Senator Roth, but I will speak for myself—I have yet during this decade of working on the issue of operational testing, making sure that weapons work before we buy them—I have yet to have one lobbyist come into my office or to meet me in the hall to say we need to make sure that our weapons work. There has not been one.

I have had lobbyists on the acquisition side of our economy representing the Department of Defense and contractors, who constantly come to my office and say, we want a certain weapon to be built in a certain town or in a certain State. We all know those forces; Senator Roth knows those forces. No one has come to say let us make sure they work before we buy them.

I think that the forces of acquisition and procurement are very strong today, strong enough that operational testing, even in this administration, has become a very low priority. I hate to say that; I truly hate to see it.

I would like to point to the chart[1] we have showing. During the decade since this office has been created, an office designed to prevent a student from grading their own exam papers, this office has been without a director 30 percent of the time. That is abysmal. Even in this administration, this office has yet to be filled with a Director of Operational Testing. This, to me, is a sad admission, a sad statement, but it is true.

In 1983, when Senator Roth and I began this process we felt truly that the Pentagon was allowing the students to grade their own exams, so to speak, by allowing the acquisition community to oversee operational testing. This was a deplorable practice, a practice that contributed to the waste of billions and billions of dollars on weapons that did not work, that today are in warehouses or have been junked.

Even worse, many, many faulty weapons were being sent to our troops for use in combat. Senator Roth and I are going to continue lobbying for those troops and ensuring that the weapons that go to them work and do not endanger their lives.

The primary accomplishment of this 1983 testing legislation was the removal of on-going and potential conflicts of interest in weapons testing. We did this by requiring by law that the Department of Defense practice and promote greater independence when testing the weapons we provide for our troops.

Unfortunately, Senator Roth and I had a wish for a strong, independent testing office. It was not granted overnight; it was not easy. For the first 18 months, this office went without a director. Even after the position was filled, continuing Pentagon animosity toward this office severely inhibited it's ability to get involved early and often in the acquisition process. Senator Roth and I envisioned an independent testing office that would work together with top acquisition decisionmakers to identify problems early in the life of a weapons system.

Let me, if I might, allude to this chart here. The ASPJ Jammer, a radar jammer which is today being installed on our F–14 fighters, which is today being sold to our allies, has never passed operational testing. It is incredible. Ninety-five of the 376 systems have already been completed, and the system has never passed operational testing.

On the C–17—40 out of the 120 aircraft, 33 percent were produced before being operationally tested. What happens? We have seen massive cost overruns, and the C–17 does not meet all of its requirements. The B–1B bomber—100 percent of these bombers were produced without any operationally testing. Well, we know the story. The first B–1B bomber, I think, that was tested hit a pelican and crashed. The rest of them, I think, are in cold storage.

In the past 10 years we have frequently heard complaints from the acquisition community and the forces that say buy, buy, buy, that testing is more trouble than it is worth, is too expensive, slows down the process, and is inconsistent with DOD acquisition strategies. We will show you another chart later in the hearing that will demonstrate how very little of the overall costs of the weapons system is used in operational testing.

---

[1] See page 51.

This office has been isolated, and the lack of the support that it has been given in the past is disturbing. Unfortunately, the past 14 months, I must admit to you, have been less then encouraging. The Pentagon's slowness in naming a testing czar is really taking the life out of our independent testers and has relegated this agency to almost a lame duck status. What is most disturbing is that without a forceful champion for independent operational testing, very important policy decisions are taking place every day in the Pentagon without the benefit of this office's input.

We are at a crossroads, I think, today in the way we use operational testing. The challenge that we face, and the reason for this hearing today is to see what we have done for the last decade, to see what we are doing now, and to see what we have to do to ensure that these weapons that we purchase and that we send to the field actually work and do not endanger the lives of our fighting men and women.

I am going to put my entire statement in the record.

PREPARED STATEMENT OF SENATOR PRYOR

This year the Congress is once again taking on the difficult task of reforming the massive acquisition system within the Department of Defense, as part of a broader effort to streamline Federal procurement. As a member of the Senate Governmental Affairs Committee, I have been closely monitoring this important issue. Thanks to the leadership of the Clinton Administration and my distinguished colleagues in the Congress—Senators Nunn, Glenn, Levin and others who have sponsored S. 1587, we are about to provide many needed and long awaited reforms that will significantly change the way our government does business.

While I support this important initiative, myself and others have expressed strong reservations about enacting the provisions of S. 1587 that deal with the Department of Defense's vital responsibility of testing weapons. As a result, today's hearing has been called to focus our attention on the importance of upholding independent weapons testing in the Department of Defense.

Independent operational testing is the crucial step in the high stakes, high dollar world of military procurement that our troops simply cannot live without. In 1983, Senator Roth and I became fed up with the Defense Department's continuing opposition to making operational tesing fully independent of the DOD acquisition community. Despite the Pentagon's objections, Senator Roth and I successfully passed legislation in Congress creating the Pentagon's first independent operational testing office, known as the DOT&E. This office was designed to be located in the Office of the Secretary of Defense and to remain independent from the intense pressures that were often applied by the acquisition community.

In 1983, Senator Roth and I found that the DOD's process for acquiring weapons was hopelessly riddled with conflicts of interest. We felt the Pentagon was "allowing the students to grade their own exams" by allowing the acquisition community to oversee operational testing. This deplorable practice contributed to the waste of billions of dollars on weapons that did not work. Even worse, faulty weapons were being sent to our troops for use in combat.

The primary accomplishment of our 1983 testing legislation was the removal of on going and potential conflicts of interest in weapons testing. We did this by requiring *by law* that the Department of Defense practice and promote greater independence when testing the weapons we provide for our troops.

Unfortunately, our wish for strong, independent testing was not granted overnight. The Pentagon leadership opposed our legislation and then took 19 months to appoint a testing director. Even after the personnel were finally hired, continuing Pentagon animosity toward operational testing severely inhibited the DOT&E's ability to get involved early and often in the acquisition process.

Senator Roth and I envisioned an independent testing office that would work *together* with top acquisition decision makers to identify problems *early* in the life of a weapon system. We hoped that such practices would enable us to keep bad weapons away from our troops, and of course, prevent us from spending billions of dollars on bad weapons.

Unfortunately, the DOT&E is currently isolated on the acquisition perimeter as the "final exam" for weapons. As a result, the DOT&E is often forced to either "stop the show" or feebly object as faulty weapons are forced into production.

I can assure everyone in this hearing room that we did not intend for the DOT&E to be either a "final exam" or a "show stopper". However, over the past 10 years, two key factors have contributed to the isolation of the DOT&E and the limits on this office's ability to positively impact the way the Pentagon builds weapons.

The first factor is the intolerance of many in the acquisition community for the existence and involvement of independent operational testing. It is widely known that the developers and advocates of new weapons prefer little or no interference by operational testers, especially when performance problems exist.

This adversarial relationship between the operational testing and acquisition communities will always exist to some degree. However, the past 10 years have taught us that when operational testing is neglected, the delicate balance of this adversarial relationship becomes dangerously tilted in the favor of the acquisition community—thus jeopardizing the very existence of independent OT&E.

In the past 10 years, we have frequently heard complaints from the acquisition community that testing is more trouble than it is worth, is too expensive, slows down the process, is often inconsistent with DOD acquisition strategies. However, it has been proven that operational testing, when fully integrated in the acquisition process, saves time, money, and most importantly, the lives of our fighting forces.

It has also been argued that the contractors should be allowed more involvement in operational testing. However, independent testing is built on a solid foundation that is designed to limit the role of contractors who are financially attached to the weapons being developed. We cannot revert back to the days when the students graded their own exams.

Unfortunately, the testing provisions of S. 1587 represent these misguided criticisms of independent testing. I am strongly opposed to these provisions, and I hope this hearing will shed light on the need to strengthen, not weaken, independent testing in the Pentagon.

The second factor contributing to the isolation of the DOT&E is the disturbing lack of support for independent testing by the leadership of the Pentagon—dating back to the creation of the DOT&E in 1983. In the absence of strong Pentagon support, we have jeopardized our independent testers' ability to ensure that the taxpayers get what they pay for and that our troops get weapons they can rely on in combat. Our operational testers must receive strong support from the highest levels of the Pentagon.

Although past administrations failed to provide independent testers with the necessary support, I must admit that I had very high hopes for the current DOD leadership. Unfortunately, the past 14 months have been less than encouraging.

The Pentagon's slowness in naming a testing czar has taken the life out of our independent testers and relegated the DOT&E office to a "lame duck" status.

I am alarmed by the Pentagon's inability to take operational weapons testing off the back-burner. What is most disturbing is that without a forceful champion for independent operational testing, important policy decisions are taking place every day in the Pentagon without the benefit on the DOT&E's input and guidance. For example, had a test director been at the table during critical discussions on how to resolve the ASPJ radar jammer disaster, I am certain that the situation would have been handled differently, and we would not be installing faulty systems on our F–14 aircraft or selling them to our allies.

In addition, had a test director been at the table last year, the operational testing office probably would not have received a demotion. In last year's Defense Authorization bill, the DOT&E was stripped of its authority to report directly to the Secretary of Defense, thus sending a dangerous signal that independent testing had decreased in importance.

Finally, and perhaps most importantly, had a test director been at the table during discussions on acquisition reform, the legislation currently circulating probably would not have surfaced. This legislation is designed to undermine independent testing and should not be enacted.

These are all examples of what happens when the Pentagon operates without the benefit of a test director's input and guidance. I am afraid that we might soon learn of other expensive lessons that could have been avoided if an honest, aggressive, and independent test director had been confirmed and at the table during the past 14 months.

After ten years of hard fought survival, the concept of independent operational testing has reached the *crossroads* this year. The direction we choose for this important function will significantly impact the way weapons are built in the future. The choices are simple—we can either weaken operational testing or we can work to strengthen its ability to encourage the development of cost-effective weapons that work.

Senator PRYOR. I will now yield to my good friend and colleague, Senator Roth.

OPENING STATEMENT OF SENATOR ROTH

Senator ROTH. Well, thank you, Mr. Chairman. Like you, I am frankly shocked at the lack of progress that has been made the last 10 years, and I am shocked because it seems to me the principal concern we have is assuring that our fighting men and women have weapons that do what they are supposed to do, a very simple proposition—fly before you buy.

The policy states that a weapon should not be produced until testing shows that it works. In the B–1B, as you pointed out, 100 percent doesn't work. Look at the time and the effort and the money that would have been saved if this simple proposition of fly before you buy had applied to that acquisition.

Mr. Chairman, in a system where bureaucratic interests carry more weight than results, realistic tests, in my judgment, and I know in your judgment as well, are vital to make sure weapons work before they are given to our troops on the battlefield.

I have to tell you I am very concerned about the Pentagon's attempt—and frankly it is a bipartisan attempt to dodge because it was true before this administration and it is true today—to dodge the testing process by a very simple method, and that is to erase the independence of the Director of Operational Testing.

An interview published in yesterday's issue of Defense News shows that the Pentagon is playing a game of hot potato with the Office of Operational Testing. In that interview, the Defense Department comptroller proposed that the director report to someone in the acquisition management chain. In addition, the Defense Department 1994 Annual Report to Congress contained an organizational chart that had the Director of Operational Testing reporting to the Under Secretary of Defense for Acquisition.

Mr. Chairman, that violates the whole concept of independence outside of the acquisition chain so that there is an independent analysis and evaluation made as to whether the weapon is going to function as intended. All I can say is that the proposed organization, in my judgment, is illegal. The law says that the Director must be independent of the Under Secretary of Defense for Acquisition.

Like you, I am concerned that the Office of Operational Testing has not had a director the last 14 months. Without a director, there is no one in the Pentagon to fight against those that want to procure the weapons even if they do not work, and let me tell you that is a tremendous force in the Pentagon.

Almost each month last year, the GAO identified weapons programs that are not in compliance with the testing laws. Just 2 weeks ago, I received a GAO report on a special computer system that the Army is buying, despite the fact that it failed its operational testing. As the chart shows,[1] current Pentagon practice allows anywhere from 25 percent, which you referred to in your comments, Mr. Chairman, to 100 percent of the production to be completed before the Pentagon knows if a system works. Of course, in the case of the B–1B it didn't work. This is clearly at odds with the Congressional policy of fly before you buy.

---

[1] See page 50.

Now, the condition of live-fire testing is also disconcerting. All major aircraft being developed by the Pentagon is avoiding tests for survivability and vulnerability. Mr. Chairman, in the recent hearings on our procurement reform bills, the GAO and Defense IG opposed the provisions of the Glenn bill that would weaken the current law.

Mr. Chairman, I won't read my full statement. I would ask that it be included as read, but just let me point out that I still believe, as do you, that live-fire and operational testings are keys to judging results. I might say that my proposal for defense acquisition reform would integrate such testing early in the acquisition system. I think this could cause a reduction of costs associated with finding acquisition problems late.

I think there is a strong push for Congress to enact procurement reform legislation, and I fear that this administration has endorsed a bill that includes proposals to weaken the testing statutes. They haven't persuaded me that that is in the National interest.

Thank you, Mr. Chairman.

Senator PRYOR. Thank you, Senator Roth.

Our first witness is the Honorable Colleen Preston, Deputy Under Secretary for Defense Acquisition Reform. We welcome you this morning. I know that you have a statement. I have read your statement, and we would appreciate it if you would summarize your statement for the Committee this morning, if you so desire.

TESTIMONY OF COLLEEN A. PRESTON,[1] DEPUTY UNDER SECRETARY OF DEFENSE (ACQUISITION REFORM), DEPARTMENT OF DEFENSE

Mrs. PRESTON. Thank you, Chairman Pryor, Senator Roth. I appreciate the opportunity to be here. I will summarize as much as I can my statement, although I do feel that there are certain things that need to be said so that we can clear up some misunderstandings about what the Department's approach is to operational test and evaluation.

First of all, I would like to address the ASPJ issue which you have spoken to Secretary Perry and Deputy Secretary Deutch about. I would like to reaffirm, on the public record, that because this system did, in fact, fail its operational test and evaluation, failed to satisfy the test criteria, the Department has made a commitment not to purchase any further systems.

However, as you are well aware, 95 of the systems had already been produced. There are no plans within the Department to purchase any additional ASPJs, period. As you know, the F–14D requires a self-protection jammer and is configured only to accept the ASPJ system. As part of the F–14D operational test and evaluation plan, it is now the DOD strategy to test, while they are testing the F–14D, the ASPJ as part of the F–14D EW suite.

---

[1] The prepared statement of Mrs. Preston appears on page 35.

If it turns out that the F–14D is more survivable with the EW suite than without it, then we will deploy only those systems that are currently in our inventory on F–14s. The Deputy Secretary has committed, however, that he will instruct the Navy not to accomplish any of that testing until the Director of Operational Test and Evaluation has been confirmed, is on the job, and offers recommendations as to the adequacy and utility of the tests.

Senator PRYOR. May I ask a question?

Mrs. PRESTON. Certainly.

Senator PRYOR. Are the sales of the ASPJ still going forward overseas?

Mrs. PRESTON. Yes, sir. In fact, I was just going to address that.

Senator PRYOR. Before operational testing proved them to be worthy?

Mrs. PRESTON. Yes, sir. What we have done is said to foreign customers that the ASPJ may be sold as a commercial item by the company to a contractor or another government. However, because the system did not pass operational testing, DOD will not allow a purchase of the ASPJ system as an FMS sale.

Senator PRYOR. Do we have to install those systems in the planes used by our—by the way, who are we selling to, our enemies or our allies?

Mrs. PRESTON. To our allies, sir; I believe the Swiss and the Finns.

Senator PRYOR. Do they know that this system has not passed operational testing?

Mrs. PRESTON. Yes, sir, they do.

Senator PRYOR. And they are buying them anyway?

Mrs. PRESTON. Yes, sir. Now, I have to tell you——

Senator PRYOR. We have some very good salesmen, I think, in this country.

Mrs. PRESTON [continuing.] —that we are selling aircraft to these same countries. Those aircraft will have to have the ASPJ system integrated if that country decides to buy the ASPJ. There have been several decisions made, on a case-by-case basis, as to whether or not FMS funds may be used to pay for the integration of the ASPJ on the aircraft.

Senator PRYOR. I interrupted you. If you would like——

Senator ROTH. Could I ask one question, Mr. Chairman?

Senator PRYOR. Certainly.

Senator ROTH. When you say the foreign buyer is aware of the situation with respect to the ASPJ, how are they informed? On what basis do we know that the foreign buyer is fully acquainted with what has proved to be defects in the operational testing?

Mrs. PRESTON. I cannot tell you that. We can provide an answer for the record. The mere fact that it is not in the U.S. inventory is typically the first tip-off to anyone that we are not providing support for the system. Most FMS customers like to purchase items that are in the inventory that they know we can support with spare parts because they use our logistics system.

INSERT FOR THE RECORD

SALE OF GOVERNMENT-OWNED AIRBORNE SELF-PROTECTION JAMMER SYSTEMS

Korea, Finland and Switzerland have all been advised that the system failed the OT&E tests and would not be purchased by DOD. They were also advised that for this reason the U.S. would not offer the system via Foreign Military Sales (FMS). We have not, nor do we think it proper carried the issue any further as the matter is now in the commercial arena. The three countries have evaluated the situation and the other systems available commercially and all three have decided to continue to attempt to purchase the ASPJ for their military forces. Our position on the matter has to be one of even-handed treatment of all U.S. contractors and to support the wishes of our customers in the absence of a DOD inventory system that meets the customer's needs.

Senator ROTH. Is the Pentagon taking the position, let the buyer beware?

Mrs. PRESTON. That is correct. It failed operational test.

Senator ROTH. Who are these being sold to?

Mrs. PRESTON. I believe the Swiss, the Finns and the Koreans.

Senator ROTH. Now, these are friends and allies with whom it is conceivable we may be in combat together. Do you think that is in our interests, for example, in the case of Korea for them to acquire a system that we find not effective?

Mrs. PRESTON. I can't answer that because I don't know the specifics of why they made the decision to buy the ASPJ.

Senator ROTH. But if I understand what you are saying, the Pentagon sort of takes a hands-off position and if somebody else wants to buy them, that is up to them, even though we as a Government know otherwise.

Mrs. PRESTON. But they are provided the information that these systems did not pass operational test and evaluation. That is why we will not sell them through FMS sales.

Senator ROTH. Could we have for the record a copy of whatever information we disclose to the foreign buyer?

Senator PRYOR. We could make that request. I don't know if that is confidential or not. If it is not classified.

Senator ROTH. I obviously wouldn't want it if it is classified.

Senator PRYOR. I think that would be an appropriate request.

May I ask, also, and then we are going to let you continue—we apologize—how much do you assess that each ASPJ unit costs the manufacturer?

INSERT FOR THE RECORD

AIRBORNE SELF-PROTECTION JAMMER UNIT COST

The average unit target price for the last limited production lot was $2.5 million for an F–18 configuration and $3.0 million for the F–14 configuration. The difference is that the F–14 requires an additional receiver and transmitter for adequate coverage.

Mrs. PRESTON. I don't know the answer to that.

Senator PRYOR. Our figures show about $3 million. Now, how much are we selling these units for?

Mrs. PRESTON. I can't answer that either. I would be happy to do that for the record.

INSERT FOR THE RECORD

SALE OF GOVERNMENT OWNED AIRBORNE SELF-PROTECTION JAMMER SYSTEMS

The U.S. Government is not selling Airborne Self-Protection Jammer systems.

Senator PRYOR. Are we getting more or less than $3 million each?

Mrs. PRESTON. I have no idea. They are commercial sales and I would have to go back to the contractor.

Senator PRYOR. They are commercial sales, but they were produced with taxpayers' dollars, right?

Mrs. PRESTON. No, sir. The ones we purchased were paid for with taxpayer dollars. The ones that are being sold, if they are sold out of inventory, would be paid for by the purchasing country, and the U.S. Government would be reimbursed.

Senator PRYOR. Where else would they be coming from? You are not producing any more, are you, right now? Where else would they come from except from out of inventory?

Mrs. PRESTON. I can't answer that.

Senator PRYOR. OK. Continue, please.

Mrs. PRESTON. In terms of the operational test and evaluation organization, the Department is strongly committed to the independence of the Director of Operational Test and Evaluation and to the live-fire testing program. The President's choice of the new Director of Operational Test and Evaluation is at this time going through the Administration's review and clearance process.

In addition, although Mr. Deutch firmly believed that the Director of Operational Test and Evaluation should work hand-in-glove with the Under Secretary of Defense for Acquisition and Technology (USD(A&T)), he has just recently signed a memorandum making clear that the Director of OT&E reports solely and directly to the Secretary and Deputy Secretary of Defense, and that there is a close working relationship, what we call a dotted line relationship, to the USD(A&T) and the rest of the acquisition community. So I think that answers the question about where the Director of Operational Test and Evaluation will be reporting.

With respect to the time that it has taken to announce an appointment of the Director of Operational Test and Evaluation, I might also indicate that we have, in fact, no current appointee as Service Acquisition Executive in either the Air Force or the Army. There are a number of appointments that have not been made in the Department of Defense. We are working as hard as we can to get these individuals appointed because for every person we are missing, the rest of us are doing double duty and I can assure you it is not fun. But it takes a long time to get through the process and we are working on it.

If you would like me to address the chart, I would be happy to do that.

Senator PRYOR. Well, last year, I think, in the 1994 DOD Authorization bill, language was included that the OT&E office would report not any longer directly to the Secretary of Defense, but to the Comptroller. Is that correct?

Mrs. PRESTON. That is correct. There were some proposals that were made and there is language that would authorize him to report through the Comptroller.

Senator PRYOR. Now, what is the Department of Defense proposing?

Mrs. PRESTON. The Department is not proposing anything at this point. The decision has been made, and the decision is that the Director of Operational Test and Evaluation will report directly—where that dotted line now stands is a solid line. The position does not exist, as shown on this chart, under the Under Secretary of Defense for Acquisition and Technology. Instead there is a "dotted line" to the USD(A&T).

Senator PRYOR. Who is the director going to report to?

Mrs. PRESTON. The Director is going to report to the Secretary and Deputy Secretary.

Senator PRYOR. Directly?

Mrs. PRESTON. Directly.

Senator PRYOR. No middle people, no middleman?

Mrs. PRESTON. No middle people, no one in the middle, period. They heard your concerns. The discussions at the point in time when the chart you have depicted was created were early discussions on organizational structures. In response to the concerns that have been raised primarily by you, Mr. Chairman, Senator Roth and others, the decision was made to have the Director report to the Secretary of Defense and the Deputy Secretary.

Senator PRYOR. Please continue.

Mrs. PRESTON. You also asked that we address the issue of simulation. I am just going to touch on that briefly. Simulation is obviously a technology that the Department will increasingly be using to reduce both the cost and time of development, as well as test and evaluation.

Simulation will be used to support, not to replace, realistic operational testing. I think that there are a number of advantages that simulation provides us. The technology has improved dramatically over the years in allowing us to use technology to begin testing very early on in the process—something that you mentioned, Senator Roth, as critical.

At that point in time, very early on in the testing process, simulation is often the only thing we can do because we don't have a system to test. At that point, we can—and the Army has—do some wonderful things. I am sure the Army would be happy to have you walk through their simulation and modeling techniques with them. They can through simulation look at a system configured for combat, actually exercise it in that environment and see whether or not the system works as it was intended, long before we build it.

Now, because I think it is something that is very critical, I would like to turn to what we are proposing with respect to reform of the operational and live-fire testing statutes. As I indicated previously, the Secretary and Deputy Secretary of Defense believe that independent operational and live-fire test and evaluation is a critical part of the acquisition process. I share that belief, and I am the person charged with making sure that acquisition reform is carried out throughout the Department of Defense. I can assure you that there is no intention on our part whatsoever of weakening and, in fact, we would like to strengthen the operational test and evaluation statutes. The reason is simple.

Senator PRYOR. I am going to have to stop you there just a minute. I apologize. Be really careful what you say about this because I truly mean this and I say it with all sincerity. Don't insult us and don't insult our intelligence by saying that you are trying to strengthen the operational testing office by supporting these amendments that weaken this department.

Are you supportive of these amendments in S. 1587?

Mrs. PRESTON. I would like to explain to you where we were in the process and where we are now in terms of the amendments we are supporting because our position has changed.

Senator PRYOR. Well, it is section 3013, so people will know. Beginning on line 23, page 160: "The Secretary of Defense may, for a particular major defense acquisition program, prescribe and apply different operational test and evaluation procedures than those prescribed under other subsections." Here is the key language: "The Secretary may transmit or may waive operational testing if he finds it to be unreasonably expensive, impractical, cause unwarranted delay, or be unnecessary because of the acquisition strategy for that system." The acquisition strategy once again is driving these purchases. We call this the Mack truck amendments. The Mack truck amendments create a loophole big enough to drive a Mack truck through. I hope you don't support this.

Mrs. PRESTON. I would like to explain to you, if I could, in detail, what it is we are supporting, and why.

Senator PRYOR. Please.

Mrs. PRESTON. There is certainly room for disagreement, and I would never say anything that would, or I hope could, be taken to insult your intelligence, because I know that you are the expert on this issue. You have been involved in this issue for many, many years.

We are trying to do some things to accommodate the interests of streamlining the acquisition process, making sure that we have accountability and responsibility in the same individuals, and pursuing various other initiatives. What we are doing is saying that we need to balance the interests here. That is one of the reasons that we are proposing some changes.

It is in our best interest to do that because as the cost of new weapons systems increases and the DOD budget decreases, we can't afford to field a system that doesn't meet operational needs and is not operationally suitable and effective.

I would also indicate to you that you had a previous chart up here on some systems where testing had not been accomplished. I hate to get into pointing fingers in terms of Administrations, but every one of those decisions on those systems was made before this Administration took office. If I am not mistaken, every one of the decisions on each of those systems was made long before the current Secretary of Defense or Deputy Secretary of Defense came into their positions.

Senator ROTH. Well, I don't want to see politics get into it, but I would just suggest what has happened in the last 14 months that shows any change of policy. I mean, a certification that such testing would be unreasonably expensive, impractical, cause unwarranted delay or be unnecessary because of the acquisition strategy for the system—and the administration supports that—frankly, that exception is so broad-based, such an open-door policy, that it makes a mockery of operational testing.

I might be able to buy some kind of waiver if I ever became persuaded, and I don't care what administration it is, that they were really strictly enforcing fly before you buy. There may be situations where it might make some sense, but the fact is that without this language, the Pentagon has found ways and means to avoid it.

When you talk about that chart that we had before and the dotted lines, it isn't whether it is a straight line or a dotted line; it is what the practice in the Pentagon itself is. What people tell us is that, in fact, on a day-to-day basis the operational testing director is going to be reporting at a lower level, and that bothers me.

Mrs. PRESTON. Sir, that is not correct. The Secretary's memo was signed out on March 17. There may be some people who have not been made aware of that decision within the Department of Defense, but I find it hard to believe that the Secretary and Deputy Secretary would be willing to commit that to you and then basically, in essence, lie to you.

Senator ROTH. Let me say—and I don't want to continue because we want to hear what else you have to say—it is not what anybody says that is going to be important. It is going to be 6 months from now, or whenever we find out what the true practice is. That is what we are going to judge it by.

Mrs. PRESTON. Great. We wouldn't disagree with that at all.

Senator ROTH. Good.

Mrs. PRESTON. As you know, the DOD Advisory Panel on Streamlining and Codifying Acquisition Laws, what we call the Section 800 Panel, examined the three current general testing statutes, 10 U.S.C. 2366, 2399 and 2400. They found that the statutes promote unnecessary oversight, have excessive definitional and reporting detail, do not allow the Department to exercise sound managerial discretion in testing application and implementation, and limit the participation of systems contractors in operational tests where such involvement is necessary and, in fact, prudent.

The panel recommended the adoption of a streamlined testing statute that set forth the basic rule that vulnerability or lethality and operational testing should occur before proceeding beyond low-rate initial production (LRIP). The proposed statute then vested the discretion in the Secretary to implement the required testing statutes and provided broad guidelines.

The panel also recommended an alternative, and that was amendments to each of the specific statutes themselves. When considered by the Acquisition Reform Senior Steering Group, which includes representatives of each of the Services and the testing community both within the Services and within OSD, the decision was made to recommend to Mr. Deutch at that time that we proceed with the Section 800 Panel recommendation for total streamlining. It was felt that the statutory language was, in fact, inflexible and that it did not add to the body of regulatory provisions that are currently now in place as a result of the legislation.

The legislation was necessary to force the Department to implement what you wanted. That has now been done through regulation and the decision was that it did not need to remain in legislation.

Senator PRYOR. Was that a unanimous decision?

Mrs. PRESTON. No, and, in fact, there were two people who opposed that. They were the Director of Operational Test and Evaluation and the DOD Inspector General.

Senator PRYOR. Did not their recommendations carry any weight?

Mrs. PRESTON. Yes, sir, they carry a lot of weight. In fact, Mr. Deutch met privately with the Inspector General. The comments of the Director of Operational Test and Evaluation were forwarded to Mr. Deutch. He read them. He read the responses that were provided by the Steering Group and decided to go forward with this recommendation at that time.

With respect to the legislation you have before you, S. 1587, and the various other legislative proposals, none of them come close to adopting either the streamlined statute proposed by the Section 800 Panel or the actual alternative that the Section 800 Panel recommended. S. 1587 comes the closest to adopting the Section 800 alternative for live-fire testing and low-rate initial production, but it does not make the changes to Operational Test and Evaluation that we feel are necessary to provide us some flexibility, and provides no relief for contractor support.

Senator PRYOR. May I ask this question? Do we have an Inspector General for the Department of Defense?

Mrs. PRESTON. No, sir, we do not. That is one of the appointments that is still being held up.

Senator PRYOR. How long has that been vacant?

Mrs. PRESTON. Since the beginning of the Administration.

Senator PRYOR. So we don't have an Inspector General and we don't have a Director of the Office of Testing. Who did Mr. Deutch meet with?

Mrs. PRESTON. Mr. Deutch met with the Acting Inspector General, Mr. Derek Vander Schaaf.

Senator PRYOR. What sort of a signal is sent out when we have these vacancies for this length of time in very, very critical functions of the Department? What sort of a signal?

Mrs. PRESTON. Sir, I can only tell you that we wish that every one of those positions was filled. I know that the Secretary and Deputy Secretary would like nothing better than to have every single political appointment finished. There is a process that the Administration goes through. It involves the FBI, as you know, and there is only so much that can be done to push that process faster than it is going. It is not for lack of recommendations from the Secretary.

Getting down to specifics, as I have mentioned, I believe that there are four problems with the current statutes that must be solved. You noted some of these objections or concerns with the current statutes. First, the laws are inflexible and in some cases unrealistic, causing us to expend a lot of money for a little gain. One example of that would be with the M1A1 live-fire test program which required the firing of 48 shots against five combat loaded Abrams tanks. The approximate cost of the tests was about $27 million, $12 million for the test program and $15 million for the tanks that were destroyed or damaged in the test.

We believe in a more systematic approach to testing—and, again, some of this is the Department being conservative and misinterpreting what the statute requires in some cases. But if we had had the opportunity to set out a testing plan that took advantage of testing components, subsystems, et cetera, early on and then made minimal use of a full-up system configured for combat, we could have saved an enormous amount of money, and I think that that is in the best interest of the taxpayer.

Senator PRYOR. Is your whole argument here that operational testing is too expensive?

Mrs. PRESTON. No, sir. I am saying that the way it is applied right now, it is in some cases an expense that is being incurred without any benefit.

Senator PRYOR. All right. Let me direct you to this blue and white chart, "Is Operational Testing Too Expensive?"[1] Now, you have got to have real good eyes, better than mine. Down at the bottom there is a little red barometer, Senator Roth, a little red line. That represents the cost of operational testing for the M1A2 tank. You can see that .8 percent went to operational testing for that tank. The testing for the ASPJ Jammer was only .2 percent of its total cost, and the C–17 and the B–1B, you see, cost less than one-tenth of 1 percent.

So I think we are looking at operational testing as almost a nonexistent cost when you look at the total expenditure of dollars here. It is a very, very small fraction.

Mrs. PRESTON. However, if I am not mistaken, the systems that you have up there that you have costed out were systems that you also pointed out did not go through operational test or went through only a minor part of the operational test.

Senator PRYOR. Staff advises me that they had already procured these weapons before operational testing occurred.

Mrs. PRESTON. Right. I am not trying to argue with you, Senator. I am just trying to indicate that that is not indicative of the true cost of an operational test program, if one is accomplished, because in none of those instances was a true operational test accomplished.

Senator PRYOR. Now, you know, testing is not a very—I hate to use the word "sexy," but it is not a very high priority item it seems like today. There are not a lot of people interested in this, except the people in the battlefield. They are going to be interested in the outcome of all of this, and they are certainly going to be interested in the outcome of S. 1587. They will also be interested in whether this, as we call it, Mack truck amendment, remains in the bill.

Making certain that these weapons work is a very, very important part of our military preparedness. Whoever our enemies might be today, we had better believe that their intelligence knows if these weapons work or don't work, and I think that we have got to keep that in mind throughout this whole process.

If you would please continue.

Mrs. PRESTON. Let me quickly go through some of the other points and then get to what is really, I think, important to you, and that is—what are we proposing with respect to changes now.

---

[1] See page 49.

One other example of a point that we have brought out is that the current laws artificially require segregation of developmental and operational tests. For example, on the F–22, there was a total 7,000-hour test program. Of that test program, only 540 were necessary for operational test.

Although it is difficult to make an assessment looking in a vacuum, if the developmental and operational test communities were able to work closer together and take advantage of the data that is developed in a more synergistic manner, it would obviously benefit both because artificially segregating the data reduces the usefulness of the data that is developed by either of the parties and forces judgments to be made on a small part of the data that is actually accumulated during an entire test program.

Third, we are trying as part of our acquisition reform initiatives to establish accountability and responsibility within the same individuals. So, for example, where we have responsibility for review of a system at the OSD level, we would like to see testing reviewed at the OSD level. However, if there has been a delegation of that authority to the Service Secretary and the Service Secretary is the one who is making all of the milestone decisions on proceeding with the program, then we believe the testing organization at that level should make the decisions with respect to testing. So as a result, we are asking that there be a match-up of the milestone decision-making authorities with the testing authority approval levels.

Then, finally, just to mention the issue of the Services using contractor support, we have some proposals on this that we think would clarify the issue of when contractor support can or cannot be used. We had an example on the AMRAAM system where a subcontractor for the contractor hired to do the operational test had been doing the developmental test. When he was hired to be the subcontractor on the operational test, they had to stop the operational testing until they could resolve the situation of making sure that the individual who had the data that they felt they needed to finish conducting the tests was available.

Because of the prohibition in the statute, which they thought they weren't able to work out, what ended up happening is that this data analyst actually resigned from the company, set up his own corporation, and then he subcontracted with Northrop, but we lost 3 to 4 months while that was going on.

Again, another example on the F–22—

Senator PRYOR. Were these contracts sole-source contracts?

Mrs. PRESTON. I can't answer that. I will provide you an answer for the record.

Senator PRYOR. I will bet you they were.

INSERT FOR THE RECORD

COMPETITIVE CONTRACT

The contract for operational test support was competed by the Department of Defense. The data analyst was hired by the support contractor as a subcontractor consultant without the benefit of competition.

Senator PRYOR. Please go forward.

Mrs. PRESTON. OK. The second situation is the situation we encounter with the so-called contract advisory and assistance services (CAAS) contractors. Actually, that was an example of the

AMRAAM contract advisory and assistance services problem where you have a contractor not involved in either development, with the exclusion of testing, or production of the system. Is there a rational reason to say that you can't be involved in both developmental and operational testing?

Another situation is where you have a contractor who is, in fact, the one who is developing and potentially producing the system. In this case of the F–22, the contractor had a full mission simulator that was essential to evaluate the F–22 against advanced threats and in a dense environment that cannot be tested in the field. That FMS was the only existing simulator that could satisfy that F–22 requirement. It was located in the systems contractor's facility and operated by the systems contractor.

For us to go in and duplicate that either by buying a machine or by hiring and training personnel that would do that test for the Department doesn't make any sense. What we want to preclude is that contractor from being involved in setting the test parameters or from doing any determination of whether or not the system met the testing requirements.

What are we proposing? We have spent a lot of time in the last several weeks trying to see if we could reach an accommodation in terms of responding to your concerns and the testing communities within the Department. I can't say that there is agreement because there isn't. If there were, you would probably be suspicious of whatever we agreed to anyway, or at least wonder what we did to the operational test people in DOD to get them to agree to this.

But, basically, we are proposing, with respect to live-fire testing, to insert a clause that would require that testing be accomplished first at the component, subsystem and sub-assembly level, culminating with tests—and this would be a clarification of the existing statutes—of the complete system configured for combat.

So we are doing exactly what you wanted, Senator Roth, which is emphasizing testing early in development—and this is actually a recommendation from the live fire testing community. We can't take credit for this. This is something they proposed, and rightly so, the emphasis on doing graduated testing as you go along in the program, which will allow us to do testing much earlier in the process, and then culminate with the complete system configured for combat.

Then we would authorize the Secretary of Defense—and that is delegable under the current statute and would remain delegable in our proposal so that it would go the milestone decision authority—to waive the vulnerability or lethality tests on a complete system configured for combat if the Secretary determines—and this again is the existing statute—that it would be unreasonably expensive and impractical, and that testing of components, subsystems and assemblies, or realistic replicas, et cetera, would provide an acceptable assessment of the vulnerability of the system as configured for combat.

Now, again, that is existing law. What we are adding is the clarifying words that there be testing on a complete system configured for combat. Those clarifying words are right now in the definitional section of the current statute, and we believe it is a little confusing, and that is the only reason we are proposing this.

Then we would require that the waiver to testing, if there is to be a waiver of testing of the complete system configured for combat, must be executed prior to engineering and manufacturing development (EMD), or in the case of a system for which there is no EMD phase—we are bringing in a lot of systems right now that we are bringing in at Milestone III or Milestone IV because they are commercial systems, so we don't have any EMD phase for some of these programs.

We are potentially going to have a new commercial off-the-shelf aircraft in the near future. If we do that, we are not going to have an engineering and manufacturing development phase. So we need the flexibility in the statute to authorize a waiver of full-up live-fire testing after EMD. Right now, the statute does not provide any waivers at all.

Senator PRYOR. Mrs. Preston, we do have two more witnesses. We have taken a lot of your time because we have interrupted you several times, but if you could conclude in a concise manner, we would appreciate it.

Mrs. PRESTON. OK. What we would then provide is that if the waiver is not executed in the time limits that are required, the Secretary of Defense, without delegation—which again would be a strengthening of the current statute—would have to approve the waiver and provide a report to Congress indicating that the waiver occurred.

With respect to operational testing, we are proposing that we align the decisionmaking authorities with respect to the testing parameters with the milestone decision authorities. So if it is the Service that makes the decisions as to whether or not to go forward with the program, it would be the testing organization within that Service who would make the testing decisions, as opposed to elevating it to OSD level.

Finally, we would allow the Secretary of Defense to authorize the use of employees of a contractor whose system is being tested, but to provide analytic and logistic support, but only that support and only when contractor impartiality is assured. And we would allow a contractor to support both developmental and operational test analysis, again only when impartiality is ensured. In neither case would the Secretary be authorized to use a contractor employee to assist in the establishment of criteria for data collection, criteria for performance assessment, or criteria relating to the evaluation activities.

If I could just summarize then, Mr. Chairman, just as in the other areas that we have targeted for acquisition reform, we need to take a good, hard look in this area—and we think we have done that—at what we intend to accomplish with the testing and evaluation process as it exists today; look at re-engineering that process to make it as efficient and cost-effective as it can be, given the changes in the environment that have occurred since the statute was adopted.

We would like to do that while we are protecting the public's interest and protecting the intent of the statute. I truly believe, and you may disagree, but I truly believe that the changes we are proposing will do that. They will accomplish the end result that you want. I only ask that you give us a chance to do this, to try this.

If we don't perform, you always have the opportunity to come back in and reimpose statutory provisions. You will have the ammunition then to do it. You will have the ammunition with respect to this team in the Department of Defense now, and again we would simply ask that we be given the opportunity to try and make some efforts to amend the statutes in a way that we think will make this approach more feasible.

Senator PRYOR. I have two quick questions. If these changes strengthen the operational testing statute, then why do we find the Office of OT&E not supporting these changes?

Mrs. PRESTON. There are some changes that the office actually supports and some that they don't support. In fact, I am trying to think of which ones the operational test community does not support. We were just having discussions as late as last night, and they have not seen the actual language. We are having it drafted up right now, and in all fairness to them they ought to be given the opportunity to see the language as it is written as opposed to discussing it verbally before they make a decision.

Senator PRYOR. I am not going to ask you to reveal the individual whom the administration is going to nominate to be our testing czar. I do not know it myself yet, but has that person been confronted with the issue of S. 1587? Has that person been instructed on how to answer questions regarding what we label as the Mack truck amendments, which we think weaken operational testing?

Mrs. PRESTON. I have never had any discussions with the individual, so I can't say that no one in the Department has ever talked to him about these provisions. But the individual is not receiving briefings at this time and will not until——

Senator PRYOR. Does this mean that we do not know how he feels about these amendments that are going to, in my opinion, weaken operational testing?

Mrs. PRESTON. I would say that it is a safe bet that there isn't anyone in the building, outside of about four or five people, who even know what amendments we are proposing because we——

Senator PRYOR. We all know the amendments. Here is the language right here.

Mrs. PRESTON. You are saying S. 1587?

Senator PRYOR. Yes.

Mrs. PRESTON. I have no idea whether or not he has any knowledge that S. 1587 exists.

Senator PRYOR. Well, I think he ought to know. I think Senator Roth probably feels like he ought to know. This is going to affect his office, his job, his challenge.

Let me conclude by saying this, I feel so strongly about this section, so strongly, that if the new nominee says he supports this language, I reserve the right to oppose this nominee and to try to find someone who believes that this should not become law.

Mrs. PRESTON. We will make sure that once the announcement of the intent to nominate is made and that individual has an opportunity to come over and the name is actually revealed at that point, that we will communicate to him your concerns.

Senator PRYOR. Senator Roth?

Senator ROTH. Mr. Chairman, just let me say I have exactly the same concerns and will join you in that effort.

Let me point out that in hearings concerning the Federal Acquisition Streamlining Act of 1993, the Defense Department, of course, requested that there be seven proposed pilot programs and that a number of statutes be waived, and these statutes include the operational and live-fire testing laws. Now, if the administration or the Pentagon is supportive of operational testing, why do they want these waived in these pilot tests?

Mrs. PRESTON. Senator, the pilot programs were carefully chosen to demonstrate that DOD could buy commercial off-the-shelf systems to the maximum extent practical using commercial terms and conditions.

Senator ROTH. We are supportive of that.

Mrs. PRESTON. OK. In many cases an operational test, as required by the Department of Defense and required by the statute itself, is not necessary. For example, one of the systems we are buying is a non-developmental item (NDI) aircraft trainer. It is going to be tested to FAA standards, et cetera, et cetera. It would make no sense for us to go through an operational test and evaluation that would comply with the current statutes in Title 10 for that system.

Senator ROTH. Mr. Chairman, our time is running out. I would just like to make one final comment, and that is I have this deep-rooted concern that within the Pentagon—and I don't care what administration it is—there is no interest in operational testing. That is the problem. I could buy a lot of these waivers and other things if I felt there was a real policy of operational testing and that they were just trying to find exceptions where there were special reasons. But, frankly, based on our experience over the last 10 years, I see most of these things as means of undercutting, reducing, if not actually eliminating the concept of fly before buy.

Senator PRYOR. Well, let me ask Senator Roth a question. Have you ever had anyone come to your office, and lobby you on behalf of operational testing?

Senator ROTH. Never.

Senator PRYOR. I haven't either. You and I, I guess, are going to try to be the lobbyists for operational testing.

Mrs. PRESTON. Mr. Chairman, could I respond to that because I think we are trying to change the way in which DOD operates? It is going to be a cultural change. The entire acquisition reform effort is intended to do that. We are trying to make sure that people understand that we are all part of the same team.

I haven't been in the Department very long, but I know enough about the testing community to know that we exist at two ends of the poles in many cases with respect to the acquisition community and the testing community. There shouldn't be any reason for that, in my opinion. The testing community should be able to be independent on their own and resolve these differences with the acquisition community as to what is reasonable. The problem is that we haven't been able to get the parties together to agree on what is reasonable.

Senator PRYOR. We thank you. We are going to keep the record open for about 5 days in case other questions come in. We appreciate very much your coming before the Subcommittee this morning.

Mrs. PRESTON. Thank you very much.

Senator PRYOR. Now, with Senator Roth's permission, because of the time, I am going to combine the next two panels: Mr. Lou Rodrigues, Director of Systems Development and Production Issues, U.S. Government Accounting Office, and the Honorable Russell Murray, former Assistant Secretary of Defense.

We would like for you to both come to the table, and if you have anybody that you would like to bring with you, feel free to do so. You have been waiting patiently and we thank you.

Mr. MURRAY. It has been a pleasure to listen to you, Senator.

Senator PRYOR. Pardon?

Mr. MURRAY. I say it has been a pleasure to listen to you.

Senator PRYOR. Well, neither of you are strangers to this Subcommittee. You have been very helpful, both of you, and we thank you for coming. I believe, Mr. Rodrigues, you are up first and should you desire to make a statement, we want to hear it. If you want to put it in the record, you may summarize your statement for us.

TESTIMONY OF LOUIS J. RODRIGUES,[1] DIRECTOR, SYSTEMS DEVELOPMENT AND PRODUCTION ISSUES, NATIONAL SECURITY AND INTERNATIONAL AFFAIRS DIVISION, U.S. GOVERNMENT ACCOUNTING OFFICE

Mr. RODRIGUES. I would like to have the full statement entered for the record and proceed with a summary.

Senator PRYOR. Without objection.

Mr. RODRIGUES. Thank you, Mr. Chairman. Mr. Chairman, Senator Roth, I am pleased to be here to discuss the current legislation affecting T&E. As you know, GAO has a long history of supporting independent testing as a critical management control over the acquisition process.

Let me be clear. GAO generally supports most of the acquisition reform proposals. However, the proposed revisions to the current T&E legislation should not be enacted because they would cripple the key management control over the system acquisition process. In light of the problems that we continue to find, the priority given to test and evaluation should increase, not decrease.

Our reviews have consistently shown that independent testing is the most realistic way to determine whether DOD is getting what it is paying for. Accordingly, we believe that any change to the current T&E legislation should at least preserve, if not strengthen, the fly before you buy principle.

Congress and, in particular, this Subcommittee has been greatly concerned about the performance of weapons systems being acquired by DOD. In an effort to ensure that U.S. military personnel receive the best weapons systems possible and that the Government receives the best value for its defense dollars, the Congress has enacted legislation which defined operational test and evaluation and established the Office of the Director of Operational Test and Evaluation with specific oversight responsibilities.

In response to concerns that DOD was continuing to procure large quantities of weapons systems without completing operational testing, Congress passed additional legislation which, among other things, required that a major system may not proceed beyond low-rate initial production until its initial operational test is completed, specified that operational test and evaluation of major acquisition programs may not be conducted until DOT&E approves the adequacy of those plans, and specified that, for covered systems and major munitions or missiles programs, realistic survivability and lethality test and evaluation, respectively, be conducted.

---

[1] The prepared statement of Mr. Rodrigues appears on page 39.

Section 800 of the National Defense Authorization Act of fiscal year 1991 directed the Under Secretary for Acquisition to appoint a panel of experts to start the process of streamlining defense acquisition laws. This year, in January 1993, the panel's reports and recommendations addressing the numerous statutes governing DOD procurements, including those concerning test and evaluation, were issued.

The Section 800 Panel made several legislative proposals in the T&E area that have been included in bills to reform the defense acquisition system. We reviewed these proposals, the Section 800 report, and all available supporting materials. As I will discuss in detail, we have concluded that the proposed changes are not justified and appear to be directed at perceived rather than documented problems. We believe the proposals would dilute the effectiveness of test and evaluation as a key management control, and thus would weaken rather than strengthen the system acquisition process.

The panel's report stated that, in some cases, developers expressed frustration over the delays and expense imposed on their programs by what they characterize as over-zealous testers. We would point out, however, that testers can test only what is called for in the test and evaluation master plan which is put together by the developers, the users and the testers. If the developers promise to develop a system with specific capabilities, it is incumbent upon them to clearly demonstrate those capabilities during the testing program. To the extent that they cannot do that, we believe it is unfair and inappropriate for the developers to consider the testers over-zealous simply because they may be the bearer of bad news.

I would now like to address quickly the individual proposals. The first proposal is to, "authorize the use of component, subsystem and sub-assembly testing instead of full-up system testing in determining the survivability of high-value systems." The panel did not consider the results of a January 1993 national Research Council study which concluded that the existing live-fire test law was a valuable contribution to vulnerability assessment. The Council also concluded that the law was satisfactory in its present form, including its mandate for full-up system testing, because the waiver process permitted exceptions where appropriate. In light of the Council study results and our earlier work in this area, we recommend that Congress not change the legislation to authorize less than full-up system survivability testing.

The second proposed change is to, "provide authority to waive survivability testing after full-scale development begins." The panel stated that this was needed because the cost and complexity of survivability testing may not be known until after some systems enter full-scale development. We do not see the need for this provision because survivability test plans should be completed and any basis for a waiver from full-up system testing should be evident prior to the start of full-scale development.

We believe much more attention needs to be focused on identifying and addressing problem areas early in the system acquisition process because early fixes are less expensive, easier to implement, and less disruptive to a program. In the survivability test area, more attention needs to be placed on how to do the testing in a timely, efficient and effective manner, and less attention on how to obtain a waiver from that testing. We believe this proposal would provide incentives to delay planning and implementing tests as long as possible and then apply for a waiver.

The third proposed change is to, "provide for the use of 'different' operational test and evaluation procedures in certain circumstances." This proposal is the one that creates the most trouble for us. We are very concerned about the potential impact of this proposal and strongly recommend that it not be enacted.

First, until shown otherwise, we believe that regular operational test and evaluation—that is, field testing under realistic conditions—is the best way to ensure that an item will be effective and suitable. Second, the proposal doesn't specify what is meant by different operational test and evaluation procedures. Lastly, this proposal would eliminate the role of DOT&E in approving test plans before operational test begins.

The last proposal that I would like to address is, "provide an exception under the LRIP requirements for strategic defense missile systems." We don't see any justification for this proposal. The panel's rationale is that these systems have low production quantities. That rationale is not correct in that at least some of these programs may involve production of dozens, if not hundreds, of units and will require ramp-up to full-rate production. Naval ships and satellites have been given special legislative treatment because they do not typically ramp-up to full-rate production.

Mr. Chairman, in summary, we believe that simpler, more flexible and more responsive procedures in the test area should not compromise the necessary discipline embodied in the current legislation. We have not found, and the Section 800 Panel has not provided the analysis to show that test and evaluation is one of the problems with the system acquisition process. On the contrary, our ongoing work for this Subcommittee on the issue of low-rate initial production indicates that testing requirements may need to be strengthened and expanded.

For many major and non-major system acquisition programs, low-rate initial production has been permitted to begin and continue based not on a system's technical maturity, but on schedule considerations. Many of the systems that enter low-rate initial production prematurely later experience significant problems during operational testing. In those cases where production is well underway, costly retrofits are required for delivered units. In some cases, such as the B–1B defensive avionics, the problems identified could not be corrected, resulting in deficient systems being fielded.

To reduce the risk of finding major operational problems after production starts, we have regularly recommended as much early operational testing as possible. Nevertheless, we continue to find that highly concurrent acquisition strategies are featured in many current major and non-major programs, with little, if any, operational testing expected until well after the start of low-rate initial production.

In today's national security environment, we believe there should be very few cases where there is a need to assume the additional risks inherent in a highly concurrent acquisition strategy. We believe that a requirement to conduct at least a phase of operational testing before low-rate initial production starts for both major and non-major systems would be feasible in most cases and would be an effective management control over the premature start of production.

In late 1992, we reported on the problems in acquiring defense systems and described the entrenched culture that has so effectively resisted many attempts at reforming the system acquisition process. We continue to see that culture hard at work today in this attempt to significantly weaken the current T&E legislation.

Plain and simple, we support increased accountability in the system acquisition process. We believe that if a program is sold on meeting a certain requirement, DOD's commitment to that program should be strictly limited until those requirements have been adequately demonstrated. Based on the interim results of our ongoing work, we believe that DOD's initial commitment to low-rate initial production of a weapons system should not be made until developmental and operational test results show that the system is potentially effective, will not need costly or extensive changes, and has a reasonable chance to successfully complete its remaining test and evaluation. We expect to complete our ongoing work by the late summer.

In closing, Mr. Chairman, I would like to respond to Senator Roth's specific question regarding the current organizational placement of the Office of Director of Operational Test and Evaluation. We have found that the organizational chart contained in the Secretary of Defense's January 1994 report to the Congress is in error. That is the chart that appeared here earlier with the dotted line.

That chart is incorrect. It erroneously shows DOT&E reporting directly to the Under Secretary of Defense for Acquisition and Technology rather than directly to the Secretary. At this time, DOT&E continues to report directly to the Secretary of Defense.

Mr. Chairman, that concludes my statement. I would be happy to answer any questions.

Senator PRYOR. Mr. Rodrigues, say that again. We were watching that chart.

Mr. RODRIGUES. This chart that appeared in the 1994 report to the President and Congress from the Secretary is incorrect. We met with the Director of Administration and Management on this issue. I can't explain exactly how that chart got in there. There were apparently a number of charts that were available for consideration and use. This one ended up there. It is incorrect. I believe it is against the law if it were enacted.

Senator PRYOR. Yes, sir. Is there any proposal in S. 1587 that would make the operational test and evaluation office report directly to the Secretary of Defense?

Mr. RODRIGUES. Not that I am aware of.

Senator PRYOR. Maybe I am not speaking correctly, but I thought last year's DOD Authorization deleted DOT&E's reporting to the Secretary of Defense. Is that correct? Did we do that?

Mr. RODRIGUES. The Act deleted the legislative requirement that DOT&E report directly to the Secretary without any intervening review or approval in between himself and the Secretary. The conferees suggested that DOT&E be placed under the comptroller's office, but that was just a suggestion. But it did delete the legislative requirement.

Senator PRYOR. I am very confused about a lot of that.

Now, I am going to ask a series of very short questions and I am going to try to elicit from you, Mr. Rodrigues, some short answers. Then I am going to yield to my colleague, Senator Roth, and then we will turn to Mr. Murray.

You think there is a lack of justification for the testing provisions of S. 1587, is that right?

Mr. RODRIGUES. Absolutely, Senator. We went through the Section 800 Panel, the information that they had, and basically most of the information they had was developed through either written input from various parties throughout the Department or discussions with individuals. They talked to project managers, program managers, program executive officers. They talked to testing officials.

It would be very difficult to see where they could have developed a consensus for the kinds of changes that they were making. There just wasn't a consensus, not even amongst those people that you would expect to be anti-test and evaluation because it affects their programs and creates problems for them. How they end up saying that these were the kinds of things that had to be done just isn't very, very clear at all to us.

Senator PRYOR. Do you think that earlier operational testing provides for better acquisition results?

Mr. RODRIGUES. Absolutely. Senator, once again I think one of the problems we see, and you addressed this very effectively, I think, in the ASPJ hearings, is that it is very difficult to face up to the problems that you identify during operational testing once you have got that production line open and running. It is very, very difficult to stop a program.

Senator PRYOR. We certainly have seen that, haven't we?

Do you believe that operational testing is too costly?

Mr. RODRIGUES. Absolutely not. I think you had a chart up there that showed the percentages for a number of programs that your staff had developed.

Senator PRYOR. Right.

Mr. RODRIGUES. Not a very significant amount of money. I would like to point out something. I was looking at this chart and it is kind of interesting. If you look across the programs that you have listed there, you look at the B–1, clearly not a great success story. The C–17—you know, the report card is still out on that, a program with tremendous problems right now under great scrutiny within the Department as well as here on the Hill. Exactly what will happen with that—you know, they are still early on in their testing. The program's costs have continued to skyrocket. We continue to waive performance requirements on that plane. We may continue to waive more in the future, so I don't know where that is going to stand, but on those two clearly a very small percentage of the total program costs.

On ASPJ, we know where that stood. You are very familiar with that. Now, let us look at the M1. The M1 has significantly more than the others and I would say is not that bad a program. It is out there and running. I don't know whether there is a direct correlation. I have never looked at it in those terms.

Senator PRYOR. I have heard this and I don't know if it is true or not, but speaking of the B–1, one of the earlier B–1s ran into a pelican and crashed. Is that a true story?

Mr. RODRIGUES. There were some problems early on with it running into some kind of bird, yes.

Senator PRYOR. Now, my question is this: What sort of testing did we do? I have heard some stories about this. How did we try to make these B–1 bombers not so vulnerable to flying objects?

Mr. RODRIGUES. I am sure what you are referring to is I discussed with your staff—and I am not sure it was related to the wing problem, but it would have been related to windshield problems where they had these so-called cannons that shoot chickens for certain kinds of tests. I have never seen them.

Senator PRYOR. We actually had that?

Mr. RODRIGUES. That was my understanding. I have never seen it, Senator. I am sure that is where that comes from.

Senator PRYOR. I hope they are from Arkansas and Delaware anyway, those chickens. [Laughter.]

Senator PRYOR. Do you think that operational testing slows down the acquisition process?

Mr. RODRIGUES. No, I don't. Clearly, if you run into problems, you could perceive that as slowing the process down. But if the objective is to get a system that works, and that is what you are going to measure to, not just getting systems, then I would say, no, it doesn't. If it is used to stop production of bad systems and all you are interested in is production, then you would have to say, yes, it does, but I think what we are after are good systems that work.

Senator PRYOR. Now, Mr. Rodrigues, how long have you been with GAO?

Mr. RODRIGUES. Twenty-four years.

Senator PRYOR. Twenty-four years, so you have seen this whole process of the operational testing office created, and 30 percent of the time it has been without a director, et cetera. Now, what do you think the mind set is, the cultural mind set, in the Department of Defense about this particular office and about independent operational testing, your personal observation?

Mr. RODRIGUES. Clearly, it is perceived as a roadblock to getting systems moving through the process, getting them funded, getting them out there. I don't know any other way to see that from what we have been working on, the work that we have done on numerous systems, where we run into programs that are having test problems. You know, you get the accusations of, well, the testers are over-zealous, they are not interpreting the results properly. We went through that on the hearings with ASPJ where there were those kinds of accusations flowing back and forth. Clearly, they are the bearers of bad news and nobody likes bad news, and it is unfortunate that our system works the way it does.

I would like to bring in one thing here. I have looked briefly at the briefing charts and Senator Roth's proposal (S. 1598) and, to me, that is the kind of acquisition reform that we need to talk to. You know, S. 1587 is nice, but what we are talking about here is 99 percent of the transactions, but only 10 percent of the dollars. The other 1 percent of the transactions, which is 90 percent of our dollars, are in the weapons acquisitions that are really not affected by this legislation, other than the proposed T&E parts of it which we don't agree with.

But I think that, Senator Roth, your bill that you have proposed is a good basis for beginning to debate the whole question of acquisition reform. What do we really need to do to develop a system that provides the incentives and addresses the cultural issues which have been so effective at defeating every single effort or attempt to reform acquisition in the past? There have been numerous reforms and they have not been successful and I think a lot of it ties back to the culture, and I think you have to rethink the whole thing about how do you have a system that gets people to do what you want to do, which is have reasonable estimates of cost and schedule and performance, rather than sell a system and then end up with problems. By the time the problem is recognized, you are so far into the program that you don't have a choice. Your hands are tied and you are committed to it and it is very difficult to stop it.

Senator PRYOR. Let me yield to Senator Roth.

Senator ROTH. Well, Mr. Chairman, I think you have asked the principal questions I have.

Mr. Rodrigues, thank you for your testimony. I am bothered about the culture because I frankly feel, until we change the culture, it doesn't make any difference what we say or do. We are not going to bring about the kinds of changes we want. I take it you agree?

Mr. RODRIGUES. Absolutely.

Senator ROTH. One minor question. In your testimony, you supported the requirement in the fiscal year 1994 national defense authorization that appropriate, rigorous and structured testing be completed prior to low-rate initial production of electronic countermeasure systems. That, of course, would differ where the current practice occurs after production begins.

My question is should the term "appropriate, rigorous and structured testing" be better defined by the Congress to ensure proper compliance?

Mr. RODRIGUES. Yes. Ideally, if we could do that, Senator, obviously the better defined it is, the better off we are. The work that we are now doing looking at low-rate initial production for this Subcommittee—in part of that we are looking at what form that operational testing—if we have a form of operational testing prior to any low-rate, what should that look like and how should it be specified? So we are dealing with that.

You know, I would hate to jump out and give an answer to exactly what it should be now because we haven't completed our work. I don't want to do the kinds of things I criticized the 800 Panel for, collecting information and not really having enough to support their position. I would like to finish that, and we are going to be addressing that issue.

Senator ROTH. Very good. Thank you for your help not only today but in the past.

Mr. RODRIGUES. Thank you. I do have one point that I would like to talk to. Mrs. Preston talked about the M1 tank and having to destroy them in live-fire testing.

Senator PRYOR. Yes.

Mr. RODRIGUES. I would point out that none of those tanks were destroyed.

Senator PRYOR. I didn't think they were.

Mr. RODRIGUES. All five of them are in operation today. They had to be retrofitted, but we didn't totally destroy them, and I think that is pretty important. I would like to read one other thing that I just happened to pick up that I think tells you something. This includes the M1 and that is why I would like to read it. It is from the Annual Report to the President and the Congress, February 1992, from Secretary Dick Cheney.

"The live-fire testing program continues to yield substantial benefits, as evidenced in the success in Operation Desert Storm. The Abrams tank," which is the M1, "Bradley fighting vehicle, F–15, F–16, F–18 and other weapons systems are among the systems modified prior to Operation Desert Storm to improve their survivability in combat as a direct result of live-fire testing. The long lead times and added complexities of weapons systems in development will add even more importance to the need to assess vulnerabilities and lethalities early in the development cycle." I think that kind of says it very well.

Senator PRYOR. Very good. We thank you, Mr. Rodrigues. You may remain, if you would like at the table.

Senator PRYOR. We are going to turn to our friend now, Secretary Russell Murray. We know that you have a statement, but feel free to summarize that statement or to read your statement, Mr. Murray. We appreciate your being here, a longstanding ally in this battle for operational testing.

TESTIMONY OF RUSSELL MURRAY,[1] FORMER ASSISTANT SECRETARY OF DEFENSE

Mr. MURRAY. Thank you, Mr. Chairman. Perhaps you remember Groucho Marx' line when he was a television quiz show host, which was "say the magic 'woid' and a duck will drop down in front of you." You have said my magic "woid", and it is operational testing, and I am your duck, and I am glad to be here.

Senator PRYOR. We are glad that you are here.

Mr. MURRAY. I would like to speak to you today about what seem to me, in retrospect, to be four of the most important policy issues in operational testing. The first of those is whether the Director of Operational Test and Evaluation should be independent of the Acquisition Executive or, stated in broader terms, whether the operational testers of weapons should be independent of the technological developers of weapons.

---

[1] The prepared statement of Mr. Murray appears on page 45.

Acquisition Executives tend to oppose that independence. They argue that, as Acquisition Executives, they are, of course, responsible for the creation of all new weapons. To carry out that responsibility, they have to have authority over all phases of that creation. Because one of those phases is testing, and because testing includes operational testing, they therefore say that they must have authority over the Director of Operational Test and Evaluation.

Wrong. That manifesto seriously prejudices the balance of influence between the weapon makers, represented by the Acquisition Executives, and the weapon users, represented by the Director of Operational Test and Evaluation.

Without *independent* operational testing to weigh in on the side of the weapon users, the weapon makers' side of the scales is too heavy with money, and with politics, and with constituencies. Without independent operational testers, there is nothing on the other side of the scales but the weapon users out in the field—the fighter pilot, the crew chief, the platoon leader, the gunner's mate. In spite of their numbers, these weapon users, so far from Washington's corridors of power, cannot by themselves match the influence of the weapon makers.

The fighter pilot is no match for the wealthy and influential military contractors who want to get their production lines rolling as soon and as prolifically as possible.

The crew chief is no match for the hundreds of thousands of those contractors' employees in dozens of states who understandably lean on Washington to look out for their economic livelihood.

The platoon leader is no match for the scientists and engineers whose reputations could be in trouble if their promised technological breakthroughs should fail in operational testing.

And the gunner's mate is no match for the managers at all levels whose job it is to get their new weapons deployed on schedule.

In short, what the weapon users out in the field are no match for is the weapon makers' great coalition of researchers and developers and manufacturers who dwell within the Acquisition Executive's sphere of influence. The danger in that imbalance of influence is that new weapon projects can then grow into avalanches, sweeping away what little opposition there may be in their path.

What is needed is a counterbalance, some way of making sure that the weapon users' interests are not swept away by that avalanche. The users' counterbalance is *independent* operational testing.

But why independent? Instead of reporting to the Secretary of Defense, why shouldn't the Director of Operational Test and Evaluation report to the Acquisition Executive, who would then balance the competing interests of the weapon makers and the weapon users?

The fact that we have yet to nominate a professional warrior to be the Acquisition Executive, and probably never will, suggests the weakness in that proposition. The reason lies in what we demand, or what we should demand, of any prospective Acquisition Executive. To handle that job, which is already viewed by some people as virtually impossible, we demand superb technological training and competence, an outstanding record in research and development, proven skill in industrial management, and experience in managing defense acquisition because that is no job for a Pentagon neophyte.

But if, in addition to all that, we also say that the Acquisition Executive must be a professional warrior, a person with the background and experience in the field to instinctively understand what a weapon user needs, then we are almost certainly demanding the impossible.

In summary of this first issue then, to ensure a proper balance between the makers and the users of weapons, the Acquisition Executive and the Director of Operational Testing must be independent. The qualifications we should demand of these two positions are, in effect, mutually exclusive. The Director of Operational Testing should be a creature of the community that uses rather than creates weapons. And, as recommended 24 years ago by the Fitzhugh Blue Ribbon Panel, the Director of Operational Test and Evaluation should report directly to the Secretary of Defense.

The second policy question is when in the development process should operational testing occur. I sense that operational testing is increasingly being viewed only as little more than a "final exam". Though that is an important milestone, operational testing can be even more important at the very inception of a project. Charles Myers' testimony earlier before this Committee illustrates the point. He said, "The question of [visual] acquisition of tanks seemed important relative to being able to use a Maverick antitank missile. So we conducted a modest conceptual test at my farm. We parked a dirty old green pickup truck in the tall grass . . . and we went out to a local airport and leased a Cessna 152. My wife and I went out, recorded the data, and correlated it with a large photograph of our farm area where the terrain is much like Europe." Chuck went on to say, "We came up with a set of numbers that would indicate that you could probably see a tank from about 7,000 feet slant range. That is less than the distance [needed] to use the Maverick. Many years later . . . those numbers were verified by Air Force testing. The problem was that the people involved in the early development testing . . . didn't really address the operational problem of a pilot who has to fire first on a tank before the air defense can shoot at him." That is the end of Charles Myers' quote.

Now, I don't know what that operational test cost—perhaps a few hundred dollars. Yet, had the Air Force paid attention to his results, they could have saved the hundreds of millions of dollars that they wasted on a hopeless system and instead gotten busy on an alternative that a pilot could actually use.

Section 138 of Title 10 of the U.S. Code defines operational testing as ". . . the field test, under realistic combat conditions, of any item of (or key component of) weapons, equipment, or munitions . . ."

As Special Counsellor of the House Armed Services Committee when that section was drafted, I can testify that the words "(or key component of)" were inserted specifically to encourage early conceptual operational testing rather than just final exams for fully completed weapons.

The third policy issue is the charge that operational testing adds to the already excessive length of weapon development and further delays fielding new weapons.

As long as the criterion is merely "fielding new weapons," the allegation of delay could well be true. But that is the wrong criterion. The right criterion, just a little bit longer, is "fielding new weapons *ready for combat*." If operational testing shows that the weapon isn't ready for combat, it *should* be delayed.

In fact, from delaying the fielding of combat-ready weapons, operational testing accelerates the process because it takes far less time to correct faults discovered early in operational testing before production and deployment starts than it takes to retrofit faulty weapons out in the field. After all, if you are just out to deploy something as fast as possible, you could always cut out the development testing, too.

The fourth policy issue is the charge that operational testing costs too much, particularly in this era of declining budgets. But operational testing accounts for only a tiny fraction of the total cost of a weapons program, as you have shown. And every time that it discloses a fault in a new weapon that can be corrected before (instead of after) the production line begins to roll, the saving swamps the relatively trivial cost of the testing.

Mr. Chairman, I can't conclude without mentioning the pending proposal in S. 1587 to allow waivers from current operational testing requirements. The draft that I have seen would return the balance between the makers and the users of weapons to the lopsided inequality of a decade ago before this Committee led the drive to level that balance by legislating independent operational testing.

The sweep of this new proposal is breathtaking. There is no apparent limit to the possible degradation or even abandonment of operational testing. The only description of the revised procedures is that they could be, quote, "different," unquote. Nor is there any limit to the importance of the programs subject to such procedural vandalism. These new provisions could apply to *any* program.

The draft stipulates four justifications for such waivers. The first would be if normal operational testing is alleged to be "unreasonably expensive." But, as I have noted, it can cost a lot more to fix a faulty weapon in the field than it could possibly cost to test it properly before it goes into production.

The second justification would be if normal operational testing is alleged to be "impracticable." But the lack of any definition of the standards for impracticability is just an open invitation to hamstring operational testing.

The third justification would be in cases where normal operational testing would "cause unwarranted delay." But the question is delay in what? Delay in fielding a weapon, or delay in fielding a *combat-ready* weapon?

The fourth justification is just so sweeping that I can only wonder why the drafters even bothered with the other three. This one would allow a waiver if normal operational testing would, "be unnecessary because of the acquisition strategy for that system." As I read that language, it would let the Defense Department gut operational testing any time it wanted to by simply writing it out of their "acquisition strategy."

The draft does conclude with one restriction on such waivers. They would not apply to programs "beyond low-rate initial production". The clear implication is that operational testing would apply only to the "final exam", which this language would now defer to the end of low-rate initial production.

As I noted earlier, operational testing should play its role from the very beginning of a program and not just as some "final exam". If the operational tester's hands are to be tied until a weapon completes low-rate initial production, his only choice will be to run for cover because, by that time, the avalanche will be in full force.

You call it the Mack truck loophole. Mr. Chairman, I suggest that it is a loophole big enough to drive a DIVAD through. [Laughter.]

Mr. MURRAY. In summary, Mr. Chairman, then, operational testing must be independent. It should be used from the beginning of weapon development. It doesn't delay deployment of weapons that work; it accelerates it. It doesn't waste money; it saves it. And I urge you, beware of proposals that would cripple the user's influence.

Thank you, sir.

Senator PRYOR. Thank you very, very much for your statement. You have spent a lot of years studying these issues, Mr. Murray. We have already heard that the testing office opposes this change. We have heard that the Acting Inspector General has opposed this change. We have heard that the General Accounting Office has opposed this change—the DIVAD amendment, we might call it now, or the Mack truck waiver, whichever.

Now, how does language like this get to become a part of a major defense acquisition reform bill? What happens? Tell us about the bureaucracy and the politics of the procurement process that gets language, over the objection of those offices, into a proposed defense acquisition program. How did this happen?

Mr. MURRAY. I don't know how it happened in this particular case. I can only guess. But, of course, you are all aware of the intense opposition to operational testing. We have seen this for, what is it, 24 years now since the 1970 Blue Ribbon Panel?

As I mentioned, there is a lot of money and there is a lot of politics and there are a lot of constituencies that want to hamstring operational testing. They presumably have gotten to whoever the drafter of that language was and had their way with it. If you sit still for that, it is going to be the end of operational testing.

Senator PRYOR. I appreciate that.

Mr. MURRAY. I wish I could give you a concrete answer. I mean, I don't know who wrote it. I would like to know.

Senator PRYOR. Well, it is a mystery that language that was opposed by so many individuals is here in the legislation, in Section 3013.

Mr. MURRAY. Well, one thing that strikes me about it is it seems extraordinarily amateurish. If I were trying to kill OT&E, I think I would be a little more subtle about it than that. That is really childish.

Senator PRYOR. Let me ask a couple of a specific questions. Why do you feel that the concept of operational testing is so outmatched by the acquisition community? How did this come about? Is the acquisition community the contractors?

Mr. MURRAY. Yes, indeed.

Senator PRYOR. Are there people within the Department of Defense who say we have got to do more in acquisition? Do we have a schedule-driven system now that we have to compete with?

Mr. MURRAY. Well, lots of weapons managers are graded, if you will, on the success they have in meeting their assigned schedules in developing new weapons. So, obviously, if the weapon development is late, that is a black mark against them. So, that is one thing that leads toward a reluctance to engage in operational testing. I mean, it might come up with a wrong answer.

As I mentioned, there is a lot of money. There are a lot of producers who don't want to see their products delayed by unfavorable operational testing. This feeling is deep-seated. I can recall at the time that operational testing was assigned to my Office of Program Analysis and Evaluation, there was a report from the Defense Science Board written by Mr. Delauer, who later became the Acquisition Executive, that, in effect—I can't recall the exact language, but, in effect—accused our office of wanting this responsibility as a way of canceling weapons that we could not otherwise cancel in order to cut the budget. I deeply resented that, but nonetheless it was an indication of the kind of feeling that there is out there, and it is not going to go away.

Senator PRYOR. What about the request this morning by Mrs. Preston when she stated the policy of the Department of Defense that we need more contractor involvement or support in operational testing?

Mr. MURRAY. It is interesting. She also mentioned something which I think is closely aligned with that, and that is the idea of combining developmental and operational testing in order to save money. That indicates a fundamental misunderstanding of the difference between operational and development testing.

Development testing is done under carefully controlled conditions and its basic purpose is to determine whether or not the new weapon meets its contractual specifications. So you have got scientists and engineers and all sorts of precision-measuring devices to find out whether the thing flies far enough or is sufficiently accurate. It is done under the most carefully controlled conditions. It has nothing to do with wartime conditions.

Operational testing, on the other hand, has nothing to do with whether a weapon meets its contract specifications. It has to do with whether the thing is usable in the field and whether there is some easy way for the enemy to defeat it. It should not be run with contractor personnel unless contractor personnel are going to participate in the field in that war. Now, if you want to specify that, fine, then you use contractor personnel.

She said, I noticed, contractor personnel are necessary for the logistic support. Logistic support is a broad term, but whether or not a machine is logistically supportable in the field is definitely something to be determined in the course of operational testing. So I just disagree with that entirely.

Senator PRYOR. Do you think if the troops out in the field could have a vote, they might strike this language?

Mr. MURRAY. I think you might see a 120-millimeter shell go right through the middle of it.

Senator PRYOR. Mr. Murray, we want to thank you. You have been a valuable resource for us and certainly a valuable addition to this morning's hearing. We thank you so much for your involvement.

Senator PRYOR. Mr. Rodrigues, we thank you, and those from the Department of Defense who have been here this morning. We hope we will work this matter out with the ultimate result of better operational testing. I am sure I am speaking for Senator Roth, we want to express our gratitude to all our witnesses this morning.

Thank you very much.

[Whereupon, at 12:27 p.m., the Subcommittee was adjourned.]

APPENDIX

PREPARED STATEMENT OF MRS. COLLEEN A. PRESTON

Chairman Pryor, Senator Stevens, Members of the Committee, I am happy to be here today to present the Department of Defense position on operational test and evaluation.

Mr. Chairman, with your permission I would like to ask that my complete statement be included for the record. My statement addresses each of the issues you have raised with Secretary Perry and Deputy Secretary Deutch, including, your concerns with respect to the Airborne Self-Protection Jammer (ASPJ), the appointment and organizational structure of the Office of Operational Test and Evaluation, the use of simulation in the development and testing of weapons, and the various initiatives to reform the testing legislation.

I will confine my verbal comments to a quick overview of each of the issues addressed in my statement, and then focus on the Department's views on acquisition reform as it relates to testing.

ASPJ

Mr. Chairman, as Deputy Secretary Deutch wrote to you on March 15, 1994, the ASPJ program has had a controversial history. Because the system failed to satisfy its operational test criteria, the Department is not procuring the system. The decisions to terminate the program, but also to buy a limited number of the systems, 95 in total, were made before the Clinton Administration took office.

I can assure you that there are no plans within the Department of Defense to acquire additional ASPJs. As you know, the Navy's F–14D requires a self-protection jammer, and is configured to accept only the ASPJ system. As part of the F–14D operational evaluation, it will be tested with the ASPJ. If it is determined that the F–14D is more survivable with the ASPJ than without it, it will be installed for fleet use. The Deputy Secretary, however, has committed to instruct the Navy to withhold any F–14D testing of this system until a Director of Operational Test and Evaluation has been confirmed, is on the job, and offers recommendations as to the adequacy and utility of such tests.

In addition, the F/A–18 has an urgent requirement for self-protection. This requirement will be satisfied by developing a new Test and Evaluation Master Plan (TEMP), which we expect to take approximately 18 months. The TEMP will provide for a comparative analysis that will allow an informed analysis of all electronic warfare alternatives for use on current and future Navy aircraft. Any decision on an electronic warfare system will be based on a new Cost and Operational Effectiveness Analysis.

Finally, the Department's position remains that Foreign Military Sales (FMS) funds will not be used to support sales of ASPJ to countries because the Department does not want to imply a warranty on a system that will not be procured for U.S. aircraft. The Department remains committed to the policy that no foreign military sales or commitments for foreign military sales of defense systems will be made prior to the successful completion of operational test and evaluation, and the specific approval of the Under Secretary of Defense (Acquisition and Technology). Consideration of the use of FMS funds to support the integration of a commercially purchased system into an American FMS aircraft will be made on a case-by-case basis.

OPERATIONAL TEST AND EVALUATION ORGANIZATION

The Department of Defense is strongly committed to independence of the Director, Operational Test and Evaluation. The President's choice to be the new Director, Operational Test and Evaluation, is at this time going through the Administration's review and clearance process. In addition, earlier this month Mr. Deutch signed a memorandum specifying that the Director, while working closely with the Under Secretary of Defense for Acquisition and Technology, would report directly to the Secretary and Deputy Secretary of Defense.

SIMULATION IN THE DEVELOPMENT AND TESTING OF ACQUISITION SYSTEMS

Simulation is a technology the Department will increasingly be using to reduce both the cost and time of development as well as of test and evaluation. Simulation will be used to support, but not to replace, realistic operational testing.

Much of the cost and time of both developmental and operational test is the result of retesting equipment. Initial tests often identify failure modes (equipment faults or employment deficiencies) requiring the redesign of the equipment or the retraining of the users before retesting can verify that performance requirements are met. This test-fix-test process increases the cost and the length of the acquisition process. Simulation offers the potential of a cheaper and quicker way to find failure modes than does field testing. It is cheaper because our simulation technology now allows experiments (called distributive interactive simulation) without having to move large numbers of personnel and equipment around the country to a test range. It is quicker because simulation can begin before hardware is produced.

Simulation also helps us to find and focus on problems early in development. Evaluation during development currently suffers because the operational consequences of what is found in developmental test are largely unknown. Simulation can suggest the operational significance of developmental tests. Further, our biggest problem is our tendency to bring immature systems to operational test. Operational tests find problems, but in most cases, the find-and-fix process delivers a system that will not be operationally suitable or operationally effective until the second or third try. Simulation can be used to avoid costly test failures that occur after design freeze—requiring expensive redesign and tooling changes.

REFORM OF THE OPERATIONAL TEST AND EVALUATION

As I indicated previously, the Secretary and Deputy Secretary of Defense believe that independent operational test and evaluation is a critical part of the acquisition process. I share that belief. As the cost of new weapons systems increases and the Department of Defense budget decreases, DOD cannot afford to field weapons that are not operationally suitable and effective. The current statutory regime for operational and live fire testing, however, has not evolved with the changes in our acquisition process that have been made, and are being recommended, to meet our new national security challenges—political, economic, and military. The result is that DOD is spending far more in both dollars and time than is necessary to achieve the goal we all agree upon.

The DOD Advisory Panel on Streamlining and Codifying Acquisition Laws (the so-called Section 800 Panel) examined the three current general testing statutes (10 U.S.C. 2366, 2399, and 2400). The panel found that the statutes promote unnecessary oversight, have excessive definitional and reporting detail, do not allow the Department to exercise sound managerial discretion in test application and implementation, and limit participation of system contractors in operational test where such involvement is necessary and prudent.

The Panel recommended adoption of a streamlined testing statute that set forth the basic rule that both vulnerability/lethality and operational testing must occur before proceeding beyond low-rate initial production. The proposed statute then vests discretion in the Secretary of Defense to implement the required testing. Broad guidelines in specific areas—such as contractor involvement and authority to modify test requirements—are provided. These guidelines state general principles, but specific implementation is left to the Secretary of Defense. Alternatively, the Panel recommended that each of the three major testing statutes be modified slightly to provide some, but not all, of the flexibility allowed in the streamlined statute.

When considered by the Department, the Acquisition Reform Senior Steering Group, which includes representatives of the services and all OSD organizations involved in the acquisition process, voted in favor of the single streamlined statute, with the exception of the Inspector General and the Director, Operational Test and Evaluation. Mr. Deutch accepted the recommendation of the Steering Group. The DOD position was subsequently adopted as the Administration position, and has been presented as such to Congress in the DOD comments on S. 1587.

All of the acquisition reform legislative proposals being considered by Congress have made some changes to the testing statutes. None of the legislative proposals adopt either the streamlined statute proposed by the Section 800 Panel nor the alternative. S.1587 comes closest, adopting the Section 800 alternative for live fire testing (10 U.S.C. §2366) and low-rate initial production (10 U.S.C. §2400), but the

S.1587 changes to operational test and evaluation (10 U.S.C. §2399) provide very little flexibility and no contractor support relief.

I believe that there are four problems with the current statutes that must be solved.

Problems with Current Testing Statutes

First, the current laws are inflexible and unrealistic, causing DOD to expend a lot of money for little gain.

The M1A1 live fire test program required the firing of 48 shots against five combat loaded Abrams tanks. The approximate cost of the test program was $27 million ($12 million for the test program and $15 million for the tanks). A more systematic approach to assessing vehicle/crew vulnerability with fewer shots into full-up combat vehicles would have accomplished the same objective with a significant reduction in cost. For example, using components, subsystems, ballistic hulls and turrets, and one or two full-up tanks would have provided the same information.

The requirements for live fire and operational test contained in the current statutes drive the test community to expend far more resources than are necessary to achieve the goal of identifying risks in the system. Test is not an end in itself. The purpose of any test is to allow the decision maker to make an informed judgment concerning vulnerability/lethality and operational suitability and effectiveness of the system being evaluated.

Second, the current laws artificially require segregation of developmental and operational testing.

On the F–22 total 7000 hour test program, only 540 hours are allotted to operational testing. The operational suitability and effectiveness will be determined on the basis of 540 hours of maintenance data rather than on 7000 hours of data.

Testing is a continuous process. Knowledge gained from one test is a building block for evaluating the knowledge gained from follow-on tests. Artificially segregating test data reduces the validity and usefulness of all the tests. Making judgments on only a part of the information gained through testing makes the decision less informed than it could be. Also, artificial separation of developmental and operational testing encourages the operational test to be seen as a final exam rather than as an opportunity to gain insight. This perception causes barriers between the testers and the developers that inhibits the timely correction of problems discovered in testing.

Third, the current laws invade on the Service's prerogatives for systems that are not being overseen by OSD by requiring approval of testing plans by OSD testing organizations as opposed to the Service testing organizations.

DOD has established a structure for oversight of programs that makes the decision level for approval of programs in the Services and OSD commensurate with the dollar value and significance of the system being acquired. This structure allows the decision makers at the highest levels to concentrate on those systems that appropriately require their attention. For example, the Under Secretary of Defense for Acquisition & Technology is the milestone decision authority for only those programs that meet the definition of ACAT 1D programs (about 40–45 programs, worth approximately $400 billion). The current testing live-fire and operational testing statutes require approvals from OSD testing organizations on programs that normally would not come to OSD for review—rather, the Services would be the designated decision-maker on systems below the ACAT 1D level.

We believe that in the interest of streamlining and assuring accountability for decision-making with respect to a program, that decisions regarding live-fire and operational testing should be at the same organizational level that other critical decisions regarding the program are being made. Testers are, and should continue to be independent of those doing system development. There is no reason to believe, however, that the testing community within the services is any less able to protect the interests of the testing community, or any less independent that the testing organizations at the OSD level.

Fourth, the current laws do not allow the Services to use appropriate contractor support in two different contexts. First, the use of services contractors for both developmental and operational testing. Second, the use of a contractor who is producing or developing the weapon system.

On the Advanced Medium Range Air-to-Air Missile (AMRAAM), the contractor who was doing data analysis for the Navy during developmental testing was a subcontractor for the contractor hired to do operational testing data analysis. The current statute on contractor involvement in data analysis required the Navy to stop operational testing. This situation was not resolved for 3–4 months until the person doing the data analysis resigned from his company and established his own firm that was then given the data analysis contract.

One of the F–22 contractors has a full mission simulator (FMS) that is essential to evaluate the F–22 against advanced threats, and in a dense environment that cannot be tested in the field. This FMS is the only existing simulator that can satisfy the F–22 requirement. The FMS is located in the system contractor's facility and operated by system contractor personnel. The cost of using the FMS during operational testing in the contractor facility with contractor personnel is $6.5 million. In order for the Air Force to do operational test, however, the Air Force must replace contractor personnel operating the FMS—at a training cost of $10 million, and build an FMS at a Government facility at a cost of $24 million (if a current simulator is upgraded) to $68 million (for a brand new facility). The only other option is to use digital simulations that will result in loss of a credible man-in-the-loop capability and the potential fidelity of the data.

The experience level of user personnel is often limited or non-existent at operational test. Judicious use of contractor personnel to broaden the experience base during the test, as long as the integrity of the test is maintained, provides a more realistic assessment of the operability of the system. Use of contractor personnel from a contractor that is not involved in either the development (excluding testing) or production of the system, to support both developmental and operational test, adds to the value of test evaluation because the evaluators are more knowledgeable about the system being evaluated.

In order to solve these four problems, and otherwise clarify and strengthen the testing statutes, I am proposing that DOD support changes to the current statutes that would do the following:

LIVE FIRE TESTING

- Substitute the word "vulnerability" for "survivability" (in 10 U.S.C. 2366) each time it appears, to clarify that live fire testing is intended to address specifically the probability of a kill given a hit, including both platform and crew vulnerability, rather than the entire spectrum of considerations usually encompassed in the term "survivability" (target acquisition, maneuver, jamming, and tactics).
- Require that: "Testing be accomplished first at the component, subsystem, and subassembly level, culminating with tests of the *complete system configured for combat*" (amend 10 U.S.C. 2366 by adding a new paragraph 3).
- Authorize the Secretary of Defense (delegable to the appropriate milestone decision authority) to "waive vulnerability or lethality tests on a *complete system configured for combat* if the Secretary determines that such testing would be unreasonably expensive and impractical, and testing of components, subsystems, and assemblies (or realistic replicas or surrogates), together with modeling and simulation, and analysis of combat data which will provide an acceptable assessment of the vulnerability of the system as configured for combat will be performed."
- Require that a waiver to the requirement for testing of a "complete system configured for combat" be executed prior to engineering and manufacturing development, or in the case of a system for which there is no engineering and manufacturing development phase, at the time a decision is made to acquire the system.

If a waiver is not executed in accordance with the time limits established above, testing of a "complete system configured for combat" may be waived only if the Secretary of Defense, *without delegation*, approves the waiver and provides a report to Congress indicating a waiver was granted.

- Add to the definition of "realistic vulnerability testing" in 10 U.S.C. 2366(e)(3), after the phrase "configured for combat", the phrase "or components, subsystems, and subassemblies (or realistic replicas or surrogates) if coupled with design analyses, modeling and simulation, and analysis of combat data," and insert the word "complete" prior to "configured."

OPERATIONAL TESTING

Make a technical change in 10 U.S.C. 2399(a) by substituting "major system" for "major defense acquisition program" each place it appears, substituting in paragraph (1) "initial" for "an" preceding "operational test and evaluation," and substituting "system" for "program." Making a technical change in the title of paragraph (b) by adding at the end "of Major Defense Acquisition Programs."

- Allow the head of the operational test and evaluation organization of the *military department*, if the military department is the milestone decision-making authority (ACAT 1C programs), to approve the adequacy of operational test plans, to analyze the results, prepare the report on the adequacy of the test and whether the item or component is effective and suitable for combat, submit that report to the appropriate DOD officials and to Congress, approve proceeding beyond low-rate initial production, approve the quantities of articles that must be tested, and waive the use of certain contractor personnel to assist in testing.

- Amend the Secretary of Defense's authority to modify the requirements for operational test and evaluation where the Secretary determines that such testing would be unreasonably expensive or impractical, would cause an unwarranted delay, or is unnecessary because of the planned acquisition strategy, and describes an alternative method to assess vulnerability/lethality or operational suitability and effectiveness to provide that the Secretary would submit a report of his determination and the alternative method to be used to determine operational effectiveness to Congress for major defense acquisition programs (as defined in 10 U.S.C. 2430) vice the current requirement to certify to Congress prior to modifying the requirement.
- Allow the Secretary of Defense to authorize the use of contractor employees of the contractor whose system is being tested, to provide analytic and logistic support when contractor impartiality is assured (add to 10 U.S.C. 2399(d)).
- Allow a contractor that supported developmental test analysis to support operational test analysis as well, when impartiality is assured.
- In neither case, may the Secretary authorize the use of contractor employees to assist in the establishment of criteria for data collection, criteria for performance assessment, or criteria relating to the evaluation activities.
- Amend 10 U.S.C. 138(A)(2)(b) to limit the authority of the Director of Operational Test to designate a program to be subject to the testing requirements for Major Defense Acquisition Programs (MDAPs) that would otherwise not meet the MDAP threshold, unless the program is so interrelated with an MDAP that testing of the programs together is the only practical means to assure realistic testing of the MDAP.

Mr. Chairman, just as in the other areas we have targeted for acquisition reform, we need to take a good hard look at what we intend to accomplish with the test and evaluation process as it exists today, re-engineer the process to make it more efficient and cost effective given the changes in the environment, and the development of new enabling technologies, while protecting the public's interest. A lot has changed since this statute was enacted—most important—the Services' view of the need for effective testing.

I would like to tell you that there is unanimous agreement within DOD on the changes I have outlined here today. But if I did, you'd probably be concerned that the testing community had given away too much in the process. I can tell you, however, that the recommendations I have outlined have been developed after many long discussions between my office and the testing community, both in OSD and in the Services, and they reflect a genuine effort to ensure the independence and effectiveness of live fire and operational testing as Congress envisioned it.

I truly believe that these changes will simplify the testing process within DOD, clarify what is required, and strengthen the independent live fire and operational test programs. I ask only that you give us a chance to prove we can execute a robust testing program with the changes I have recommended. If we fail, you will certainly have the ammunition and the wherewithal to make further changes in the statute at that time.

I will be happy to answer any questions you may have.

PREPARED STATEMENT OF LOUIS J. RODRIGUES

Mr. Chairman and Members of the Subcommittee:

I am pleased to be here today to discuss the current legislation affecting the test and evaluation (T&E) of defense systems and the various proposals to reform that legislation. As you know, our Office has a long history of supporting independent operational T&E—conducted as early as possible in the acquisition process—as a critical management control over the process to acquire defense systems. We are currently studying the Department of Defense's (DOD) use of the low-rate initial production (LRIP) concept and, in particular, the advantages and disadvantages of performing at least some operational T&E prior to starting LRIP.

Results in Brief

Let me be clear right up front that GAO generally supports most of the acquisition reform proposals being debated in the Congress. However, most of the proposed revisions to the current T&E legislation should not, in our view, be enacted because they are directed at perceived rather than documented problems and because they would undermine a key management control over the system acquisition process. In light of the problems that we continue to find in the acquisition defense systems, the priority given to T&E should increase, not decrease, as would occur if the legislative proposals were enacted. Our reviews of test and evaluation issues, the defense system acquisition process, and numerous individual weapon programs have consistently shown that independent operational T&E is the most realistic way, short of war, to determine whether DOD is getting what it paid for in each system acquisition program. We also believe that, if a program is "sold" on meeting certain requirements, DOD's commitment to that program should be strictly limited until those requirements have been adequately demonstrated. Accordingly, we believe that any change to the current T&E legislation should at least preserve, if not strengthen this "fly-before-buy" principle.

Background

Over a period of many years, Congress has been greatly concerned about the performance of weapon systems being acquired by the DOD. As early as 1972, Congress required DOD to provide it with information on the operational T&E results of major weapons systems before committing to production. However, Congress continued to receive reports from our Office, the DOD Inspector General, and others that (1) weapon systems were not being adequately tested before beginning production, (2) fielded systems were failing to meet their performance requirements, and (3) the operational T&E being conducted on weapon systems was of poor quality.

In an effort to ensure not only that U.S. military personnel receive the best weapon systems possible but to ensure that the U.S. government receives best value for the defense procurement dollar, the Congress enacted legislation which

—defined operational T&E[1] (10 U.S.C. 139(a)(2)(A)); and

—established the office of the Director, Operational Test and Evaluation (DOT&E), and assigned specific oversight duties and responsibilities (10 U.S.C. 139(a)(1)).

The Congressional Military Reform Caucus convened a panel in 1989 to review the conduct of operational and live fire testing, and how DOD was implementing the testing laws. The panel found that top DOD decisionmakers needed to pay greater attention and commitment to operational T&E. In the House Armed Services Committee report accompanying the National Defense Authorization Act for Fiscal Years 1990–1991, the Committee noted its concern that DOD was procuring large quantities of weapons systems without completing operational testing. The Phoenix missile was cited as an example where over 52 percent of the program quantity had been procured before operational testing was completed.

As a result of these and other cases, Congress passed additional T&E legislation which, among other things,

—required that a major system[2] may not proceed beyond LRIP until its initial operational T&E is completed (10 U.S.C. 2399(a));

—specified that-operational T&E of a major defense acquisition program[3] may not be conducted until the DOT&E approves the adequacy of the plans for operational T&E (10 U.S.C. 2399(b)(1));

—specified the purposes of LRIP, the timing of the determination of quantities to be procured in LRIP, and provided for certain exemptions to the LRIP requirements (10 U.S.C. 2400);

—required that DOT&E analyze the results of the operational T&E conducted for each major defense acquisition program and, prior to a final decision to proceed beyond LRIP, report on the adequacy of the testing and whether the results of such T&E confirm that the items tested are effective[4] and suitable[5] for combat (10 U.S.C. 2399(b)(2) and (b)(4));

---

[1] The term "operational test and evaluation" means (1) the field test, under realistic conditions, of any item of (or key component of) weapons, equipment, or munitions for the purpose of determining the effectiveness and suitability of the weapons, equipment, or munitions for use in combat by typical military users; and (2) the evaluation of the results of such test.

[2] According to DOD regulation, a major system is defined as a system whose research, development, test, and evaluation cost is estimated to exceed $115 million in fiscal year 1990 dollars or procurement cost is estimated to exceed $540 million in fiscal year 1990 dollars.

[3] A major defense acquisition program is defined as a system whose research and development cost is expected to exceed $300 million in fiscal year 1990 dollars or procurement cost is expected to exceed $1.8 billion in fiscal year 1990 dollars.

[4] DOD defines operational effectiveness as "the overall degree of mission accomplishment of a system when used by representative personnel in the environment planned or expected (e.g., natural, electronic, threat, etc.) for operational employment of the system considering organization, doctrine, tactics, survivability, vulnerability, and threat (including countermeasures, initial nuclear weapons effects, nuclear, biological, and chemical contamination (NBCC) threats)."

[5] DOD defines operational suitability as "the degree to which a system can be placed satisfactorily in field use with consideration given to availability, compatibility, transportability, interoperability, reliability, wartime usage rates, maintainability, safety, human factors, manpower

—specified that, for purposes of proceeding beyond LRIP, required operational T&E not include an operational assessment based exclusively on computer modeling, simulation, or certain analyses (10 U.S.C. 2399(h)(1)); and

—specified that, for certain covered systems and major munition or missile programs[6] , realistic survivability and lethality T&E, respectively, be conducted; any design deficiency identified by the testing be corrected; and specific reports be submitted before proceeding beyond LRIP (10 U.S.C. 2366).

Section 800 of the National Defense Authorization Act for Fiscal Year 1991 directed the Under Secretary of Defense for Acquisition (USD-A)[7] to appoint an advisory panel of government and private sector experts to start the process of rationalizing, codifying, and streamlining the laws underpinning the defense acquisition system. The Panel was to review all laws affecting DOD procurement and to issue a report for transmission by the Secretary of Defense to Congress. The report was to contain recommendations to eliminate any laws "unnecessary for the establishment and administration of the buyer and seller relationship in procurement"; ensure the "continuing financial and ethical integrity of defense procurement programs"; and "protect the best interests of the Department of Defense."

Issued in January 1993, the Panel's report[8] and recommendations address those statutes governing (1) DOD's procurement of commercial items; (2) simplified acquisition thresholds and socioeconomic policies; (3) contract formation and management (such as truth in negotiations, protests, and cost accounting standards); (4) defense technology and industrial base matters; (5) intellectual property rights and standards of conduct; and (6) major systems, testing, and other matters.

We recently reported[9] on, among other things, the Section 800 Panel's compliance with certain legislative requirements. Also, our Office has recently addressed other aspects of acquisition reform at a joint hearing of the Senate Committee on Armed Services and the Senate Committee on Governmental Affairs. Our discussion here today will be limited to the proposals to revise the T&E legislation.

Current Proposals to Revise T&E Legislation

The Section 800 Panel made several legislative proposals in the T&E area that have also been included to various extents in the pending Senate and House bills (S. 1587 and H.R. 3586) and the Conyers/Clinger proposals to reform the defense acquisition system. The major T&E proposals currently under consideration seek to:

(1) authorize the use of component, subsystem, and subassembly testing instead of full-up system[10] testing in determining the survivability of "high value" systems;

(2) provide authority to waive survivability testing after full-scale development begins;

(3) provide for the use of "different" operational T&E procedures in certain circumstances; and

(4) provide an exception to the LRIP requirements for "strategic defense missile systems."

GAO Assessment of Legislative Proposals

We reviewed the T&E proposals, the Section 800 report, and all available supporting materials with the following questions in mind:

(1) Is the current T&E legislation a sensible approach to address deficiencies in the system acquisition process?

(2) To what extent is the current T&E legislation, as implemented, effective in meeting its objectives?

(3) Does the current T&E legislation impose extraordinary penalties or burdens on DOD?

As I will discuss in some detail below, we have concluded that the justifications for the T&E proposals do not answer these questions and that the proposals appear to be directed at perceived rather than documented problems. We believe the pro-

---

supportability, logistics supportability, natural environmental effects and impacts, documentation, and training requirements."

[6] 10 U.S.C. 2366 contains definitions of the terms "covered system" and "major munitions program." For example, it defines covered system as a vehicle, weapon platform, or conventional weapon system that (a) includes features designed to provide some degree of protection to users in combat and (b) is a major system.

[7] Now the Under Secretary of Defense for Acquisition and Technology (USD-A&T).

[8] *Streamlining Defense Acquisition Laws;* Report of the Acquisition Law Advisory Panel.

[9] *Acquisition Reform: DOD Acquisition Law Advisory Panel's Operations and Report* (GAO/NSIAD-94-5, Dec. 1, 1993).

[10] The term "full-up system" is synonymous with the term "configured for combat," which is defined in 10 U.S.C. 2366(e) (5) as a weapon system, platform, or vehicle loaded or equipped with all dangerous materials (including flammables and explosives) that would normally be on board in combat.

posals to modify the T&E legislation would dilute the effectiveness of T&E as a key management control and thus, would weaken rather than strengthen the system acquisition process. Therefore, we would not support the major T&E proposals and strongly suggest that they be deleted from the acquisition reform bills pending before the House and Senate.

Although independent T&E is clearly the most realistic way, short of war, to determine if DOD is getting what it paid for, T&E is generally viewed by the acquisition community as a requirement imposed by outsiders rather than a management tool to identify, evaluate, and reduce technical risks and, therefore, a means to more successful programs. In that light, the Panel's report stated that, in some cases, the developers express frustration over the delays and expense imposed on their programs by overzealous testers. We would point out, however, that the testers can test only what is called for in the test and evaluation master plan, which is put together by the developers, users, and testers. If the developers promise to develop a system with specific capabilities, it is incumbent on them to clearly demonstrate those capabilities during the testing program. To the extent that they cannot do that, we believe it is unfair and inappropriate for the developers to consider the testers "overzealous" simply because they may be the bearer of the bad news.

The legislative proposals also seem to support the philosophy that we encounter too frequently at the program office level—that it is most important to get the program into production despite the uncertainty that the system will work as promised or intended. Also, an underlying assumption seems to be that a key acquisition issue is to reduce the length of the system acquisition process and an obvious way to shorten the process is to reduce troublesome parts of the process, such as testing. Moreover, we have seen numerous instances where DOD has chosen not to promptly correct problems identified during testing and decided to proceed into production and deployment despite the identified problems. With that in mind, we do not believe it would be in the best interests of the U.S. government to weaken the testing requirements and discipline embodied in the current legislation.

* * * * *

I will now address the individual proposals in the order mentioned earlier.

(1) Authorize the use of component, subsystem, and subassembly testing instead of full-up system testing in determining the survivability of "high value" systems.

The Section 800 Panel concluded that full-up system testing can add unnecessary time and expense over component testing and that the provision in the current legislation permitting waivers from fullup system testing was not adequate. However, in creating an exemption for all "high value" systems, the proposal would eliminate reporting to the Congress on plans for alternatives to full-up survivability testing, as is required under the current waiver process. Moreover, the fact that "high value" is not defined is an added concern since more systems may be affected than Congress may anticipate.

In addition, the Panel's conclusion admittedly did not consider the results of a January 1993 National Research Council study.[11] Among other things, the Council concluded that the existing live fire test law was a valuable contribution to vulnerability assessment and to the design of survivable aircraft. The Council also concluded that the law was satisfactory in its present form, including its mandate for full-up system testing, because the waiver process permitted exceptions where appropriate. The Council, however, recommended that DOD formalize the waiver process by developing a risk-benefit assessment methodology that could be used uniformly to determine whether a full-scale, full-up system test program for any particular aircraft is "unreasonably expensive and impractical."

In light of the Council's study results and our earlier work in this area,[12] we recommend that Congress not change the legislation to authorize less than full-up system survivability testing for "high value" systems. A case-by-case assessment of the costs and benefits of full-up system testing—which is the current practice—is preferable to an across-the-board exemption for "high value" systems.

(2) Provide authority to waive survivability testing after full-scale development begins.

The Section 800 Panel stated that this provision was needed because the cost and complexity of survivability testing may not be known until after some systems enter full-scale development. We do not see the need for this provision because the survivability test plan should be completed and any basis for a waiver from full-up system testing should be evident prior to the start of full-scale development. As a reminder, the survivability/lethality test law requires consideration of survivability/lethality during the system development phase. The proposal to allow waivers later in the system acquisition process may give program officials an incentive to delay planning and implementing the tests as long as possible and then apply for a waiver.

---

[11] This study, entitled *Vulnerability Assessment of Aircraft: A Review of the Department of Defense Live Fire Test and Evaluation Program*, was requested by DOD in an attempt to resolve the controversy regarding the law's requirements and to obtain an independent opinion regarding the total vulnerability assessment process and the law's contribution to that process.

[12] See *Live Fire Testing: Evaluating DOD's Programs* (GAO/PEMD–87–17, Aug. 17, 1987).

We believe much more attention needs to be focused on identifying and addressing problem areas earlier in the system acquisition process—through survivability, lethality, and operational testing—because early fixes are less expensive, easier to implement, and less disruptive to the program. In the survivability test area, more attention needs to be placed on how to do the testing in a timely, efficient and effective manner and less attention on how to obtain a waiver from the testing.

(3) Provide for the use of "different" operational T&E Drocedures in certain circumstances .

This proposal is the most troublesome to us because it is ambiguous and potentially far-reaching. The alternative testing procedures would be permitted if the normal operational T&E procedures were found to (a) be unreasonably expensive and impractical, (b) cause unwarranted delay, or (c) be unnecessary because of the acquisition strategy for that system. We are very concerned about the potential impact of this proposal and strongly recommend that it not be enacted.

First, until shown otherwise, we believe that "regular" operational T&E (i.e. field testing under realistic conditions) is the best way, by far, to ensure that an item will be effective and suitable. Second, the proposal does not specify what is meant by "different" operational T&E procedures. For example, would computer modeling and simulation, paper studies, etc., be substituted for field tests? We want to emphasize here that the ultimate objective of operational T&E is to clearly demonstrate the system's operational effectiveness and suitability in a realistic environment. There is no prohibition on the use of computer modeling and simulation as a supplement to operational T&E. Computer modeling and simulation, as well as other developmental tools, should be used to evaluate the operational utility of the system and to identify key aspects of the system design to be addressed in operational T&E. Lastly, this proposal would eliminate the role of DOT&E in approving the test plans before operational testing begins.

In addition, we question the prescribed bases for the use of "different" operational T&E, as follows:

—Where "regular" operational T&E is unreasonably expensive and impractical. Fundamentally, we are hard-pressed to envision situations where "regular" operational tests have been or could be "unreasonably expensive and impractical" when judged against the potential expenditures of many millions, if not billions, of dollars for a weapon system. Moreover, we point to the fact that, under the current procedures, the operational testing to be conducted and the testers' role in each program is specified in the test and evaluation master plan, a document put together by the developers, users, and testers. We believe the current processes to develop and approve the test plans provide adequate opportunity to structure affordable and practical programs of "regular" operational T&E. Unfortunately, this provision would provide the opportunity for the system developers to circumvent these processes.

—Where "regular" operational T&E would cause unwarranted delay. Although operational T&E takes time, one should look at the causes for delays attributed to testing—for example, are they due to excessive or unnecessary testing or to an inadequate system struggling to meet its goals? While there are many potential causes of program delays, our experience is that programs are often delayed or disrupted because they did not do well in development and testing. In addition, we often find that system acquisition strategies frequently do not allow enough time for resolution of problems expected to be found during testing. Therefore, we believe that this provision will not improve the system acquisition process because it would provide the opportunity to single out T&E as the cause of program delays.

Where "regular" operational T&E would be unnecessary because of the acquisition strategy for that system. This proposal is very broad but, according to the Section 800 Panel report, is directed, at least in part, at situations involving the acquisition of non-developmental items. Regardless of whether items are developmental or non-developmental, the items should demonstrate that they meet military requirements before being procured. We have seen several cases—such as the Heavy Equipment Transporter System, the Family of Medium Tactical Vehicles, and the Palletized Loading System—where operational T&E has shown that a "non-developmental item" was not fully effective and/or suitable for military operations.

(4) Provide an exception under the LRIP requirements for "strategic defense missile systems."

The Section 800 Panel's rationale for this proposal is that these systems have low production quantities. That rationale is not necessarily correct in that at least some of these programs may involve production of dozens, if not hundreds, of units. Therefore, these types of systems should be expected to have a phase of low-rate production followed by full-rate production. Naval ships and satellites have been given special legislative treatment because they do not typically ramp-up to full-rate production. Therefore, we do not see any justification for exempting "strategic defense missile systems" from the LRIP legislation.

* * * * *

We believe that simpler, more flexible, and more responsive procedures in the testing area should not compromise the necessary discipline embodied in the current legislation. We have not found, and the Section 800 Panel has not provided the analysis to show that T&E is one of the problems with the system acquisition process. On the contrary, our large body of work indicates that the testing requirements may need to be strengthened and expanded.

Ongoing GAO Work on Low-Rate Initial Production

For many major and non-major system acquisition programs, LRIP has been permitted to begin and continue based not on the systems' technical maturity but on schedule considerations. For example, the Advanced Medium Range Air-to-Air Missile, the B-1B, the C–17, the Short-Range Unmanned Aerial Vehicle, the B–2, and numerous electronic warfare programs clearly started production prematurely and with little, if any, indication of the system's operational effectiveness and suitability. The current LRIP legislation permits—and tends, in our view, to encourage—DOD to start LRIP before any operational testing is conducted.

Many of the systems that enter LRIP prematurely later experience significant effectiveness and/or suitability problems during operational testing that require major design changes to correct and additional testing to verify. In those cases where production is well underway, costly retrofits are required for delivered units. For example, the C–17 and T–45A aircraft, the B-1B defensive avionics, the Advanced Medium Range Air-to-Air Missile, and numerous electronic warfare systems needed many design changes and costly retrofits because of poor test results. In some cases, such as the B–1B defensive avionics, the problems identified could not be corrected, resulting in deficient systems being fielded.

Moreover, even though LRIP may have been started primarily to provide articles for testing, DOD very often continues production beyond that purpose, despite technical problems identified during operational testing. For example, despite a number of serious technical problems, as many as 72 T–45A aircraft of the total program quantity of 268 will be authorized under LRIP. In addition, significant quantities of several electronic warfare systems were procured despite significant technical problems and shortcomings.

To reduce the risk of finding major operational effectiveness and suitability problems after production starts, we have regularly recommended (1) less concurrent development and production, and (2) as much operational testing as possible before production starts. Nevertheless, we continue to find that highly concurrent acquisition strategies are featured in many current major and nonmajor programs, with little, if any, operational testing expected until well after the start of LRIP. For example, the F/A–18E/F aircraft and F–22 aircraft programs plan to make substantial commitments to production before completing initial operational T&E. Contrary to general commercial practices and despite the risk of being committed to producing deficient systems, defense system acquisition programs continue to enter and proceed well into production before being put under serious scrutiny. In today's national security environment, we believe there should be very few cases where there is a need to assume the additional risks inherent in a highly concurrent acquisition strategy.

Based on its review of major defense acquisition programs,[13] the DOD Inspector General also found that programs were entering LRIP without meeting the development, testing, and production readiness prerequisites and recommended that program-specific exit criteria be set up to ensure that those prerequisites be met before entering LRIP. Because of the costs involved and the inability or unwillingness to curtail production after it starts, we agree that controls are urgently needed over the start and continuation of LRIP. Most importantly, we believe that a requirement to conduct at least a phase of operational testing before LRIP starts would be feasible in most cases and would be an effective management control over the premature start of production.

---

[13] *Low-Rate Initial Production in Major Defense Acquisition Programs* (Report No. 94–014; Nov. 9, 1993).

The requirement in the National Defense Authorization Act for Fiscal Year 1994 that the Secretary of Defense ensure appropriate, rigorous, and structured testing be completed prior to LRIP of any electronic combat or command, control, and communication countermeasure system is definitely a move in the right direction. However, its provisions—as are most legislative provisions on T&E matters—are applicable only to major defense acquisition programs.[14] We presently expect no more than three or four systems will be covered by this provision. Our findings—particularly evident in the electronic warfare and command, control and communications area but common on other system developments—are not limited to major systems or major defense acquisition programs. In fact, some of these problems appear to be more acute with the non-major programs. We feel strongly that the principles, if not the reporting requirements, of the current—and we hope strengthened—T&E legislation should be applicable to non-major as well as major systems.

Potential Impact of Acquisition "Culture"

In late 1992, we reported[15] on the problems in acquiring defense systems and described the entrenched "culture" that has so effectively resisted many attempts at reforming the system acquisition process. We continue to see that culture hard at work today in this attempt to significantly weaken the current legislation controlling T&E. We do not support the proposed changes because they would tend to weaken the primary mechanism that, in our view, can be used effectively to discipline the system acquisition process.

Plain and simple, we support increased accountability in the system acquisition process. We continue to believe that, if a program is "sold" on meeting certain requirements, DOD's commitment to that program should be strictly limited until those requirements have been adequately demonstrated. Based on the interim results of our ongoing work, we believe that DOD's initial commitment to LRIP of a weapon system should not be made until developmental and operational test results show that the system (a) is potentially operationally effective, (b) will not need costly or extensive changes, and (c) has a reasonable chance to successfully complete its remaining operational T&E in a timely fashion. We expect to complete our ongoing work by the late summer.

Most participants in the defense system acquisition process ascribe at least in principle to a "fly-before-buy" acquisition philosophy. However, many of the current T&E proposals would in practice move DOD away from that principle.

* * * * *

In response to Senator Roth's specific question regarding the current organizational placement of the Office of the Director, Operational Test and Evaluation (DOT&E), we have found that the organization chart contained in the Secretary of Defense's January 1994 report to the Congress to be in error. That report erroneously shows DOT&E reporting directly to the Under Secretary of Defense for Acquisition rather than directly to the Secretary of Defense. At this time, DOT&E continues to report directly to the Secretary of Defense. However, the National Defense Authorization Act for Fiscal Year 1994 deleted the legislative requirement that DOT&E report directly, without intervening review or approval, to the Secretary of Defense. The conferees suggested that DOT&E be placed under the Comptroller's Office.

Mr. Chairman, that concludes my statement. I will be happy to answer any questions you or members of the Subcommittee may have.

PREPARED STATEMENT OF RUSSELL MURRAY

Mr. Chairman, I am both delighted and greatly honored to appear before you and this distinguished Subcommittee on a subject of such great importance: operational testing.

I would like to speak to you today about what seem to me in retrospect to be some of major policy issues in operational testing.

Operational Testing and Independence

---

[14] The legislation in question here refers to acquisition category I (ACAT I) programs, which are also major defense acquisition programs.

[15] *Weapons Acquisition: A Rare Opportunity for Lasting Chance* (GAO/NSIAD–93–15, Dec. 1992).

The first issue is whether the Director of Operational Testing should be independent of the Acquisition Executive—in broader terms, whether the operational testers of weapons should be independent of the technological developers of weapons.

Acquisition Executives tend to oppose such independence. They argue that, as Acquisition Executives, they are of course responsible for the creation of all new weapons. To carry out that responsibility, they must have authority over all phases of that creation. Because one of those phases is testing, and because testing includes operational testing, they must have authority over the Director of Operational Testing.

Wrong.

That manifesto seriously prejudices the balance of influence between the weapon makers (represented by these Acquisition Executives), and the weapon users (represented by the Directors of Operational Testing).

Without *independent* operational testing to weigh in on the side of the weapon users, the weapon makers' side of the scales is too heavy with money, and with politics, and with constituencies. Without independent operational testers, there's nothing on the other side of the scales but the weapon users out in the field—the fighter pilot, the crew chief, the platoon leader, the gunner's mate. In spite of their numbers, these weapon users, far from Washington's corridors of power, cannot by themselves match the influence of the weapon makers.

- The fighter pilot's no match for the wealthy and influential military contractors who want to get their production lines rolling as soon—and as prolifically—as they can.
- The crew chief's no match for the hundreds of thousands of those contractors' employees in dozens of States who understandably lean on Washington to look out for their economic livelihood.
- The platoon leader's no match for the scientists and engineers whose reputations could be in trouble if their promised technological breakthroughs fail in operational testing.
- And the gunner mate's no match for the managers at all levels whose job is to get their new weapons deployed on schedule.

In short, what the weapon users out in the field are no match for is the weapon makers' great coalition of researchers and developers and manufacturers who dwell within the Acquisition Executive's sphere of influence. The danger in that imbalance of influence is that new weapon projects can then grow into avalanches, sweeping away what little opposition there may be in their path.

What 's needed is a counterbalance—some way of making sure that the weapon users' interests are not swept away by that avalanche. The users counterbalance is *independent* operational testing.

But why independent? Instead of reporting to the Secretary of Defense, why shouldn't the Director of Operational Testing report to the Acquisition Executive, who would then balance the competing interests of the weapon makers and the weapon users?

The fact that we have yet to nominate a professional warrior to be the Acquisition Executive—and probably never will—suggests the weakness in that proposition. The reason lies in what we demand (or should) of any prospective Acquisition Executive. To handle that job (already felt by some to be impossible) we demand superb technological training and competence, an outstanding record in research and development, proven skill in industrial management, and experience in managing Defense acquisition because it's no job for a Pentagon neophyte.

But if, in addition to all that, we also say that the Acquisition Executive must be a professional warrior, a person with the background and experience in the field to instinctively understand what a weapon user needs, then we're almost certainly demanding the impossible.

In summary, to ensure a proper balance between the makers and the users of weapons, the Acquisition Executive and the Director of Operational Testing must be independent. The qualifications we should demand of two positions are, in effect, mutually exclusive. The Director of Operational Testing should be a creature of the community that uses rather than creates weapons. And, as recommended 24 years ago by the Fitzhugh Blue Ribbon Panel, the Director should report directly to the Secretary of Defense.

Conceptual Operational Testing

A second policy question is when in the development process should operational testing occur. I sense that operational testing is increasingly being viewed as little more than a "final exam". Though that is an important milestone, operational testing can be even more important at the very inception of a project. Charles Myers' testimony before this Committee on June 23, 1983 illustrates the point. He said:

> "The question of [visual] acquisition of tanks seemed important relative to being able to use a Maverick missile. So we conducted a modest conceptual test at my farm. We parked a dirty old green pickup truck in the tall grass not too far from the silo and we went to a local airport and leased a Cessna 152. My wife and I went out, recorded the data, and correlated it with a large photograph of our farm area where the terrain is much like Europe.
>
> "We came up with a set of numbers that would indicate that you could probably see a tank from about 7,000 feet slant range. That is less than the distance [needed] to use a Maverick.
>
> "Many years later . . . those numbers were verified by Air Force testing. The problem was that the people involved in the early development testing . . . didn't really address the operational problem of a pilot who has to fire first on a tank before the air defense can shoot at him."

I don't know what Mr. Myers' conceptual operational test cost—perhaps a few hundred dollars. Yet had the Air Force paid attention to his results, they could have saved the hundreds of millions of dollars they wasted on a hopeless system, and instead gotten busy on an alternative that a pilot could actually use.

Section 138 of Title 10 of the U.S. Code defines operational testing as:

> ". . . the field test, under realistic combat conditions, of, any item of (*or key component of*) weapons, equipment, or munitions. . . ."

As Special Counsellor of the House Armed Services Committee when that section was drafted, I can testify that the words "or key component thereof" were inserted specifically to encourage early conceptual operational testing rather than just final exams for completed weapon systems.

Delays Caused by Operational Testing

A third policy issue is the charge that operational testing adds to the already excessive length of weapon development and further delays fielding new weapons.

As long as the criterion is merely "fielding new weapons", the allegation of delay could well be true. But that's the wrong criterion. The right one—just a bit longer—is "fielding new weapons *ready for combat*". If operational testing shows that a weapon isn't ready for combat, it *should* be delayed.

In fact, far from delaying the fielding of combat-ready weapons, operational testing accelerates the process because it takes far less time to correct faults discovered early in operational testing before production and deployment starts than it takes to retrofit faulty weapons in the field. After all, if you're just out to deploy something as fast as possible, you could always cut out the development testing, too.

The Expense of Operational Testing

A fourth policy issue is the charge that operational testing costs too much, particularly in an era of declining budgets. But operational testing accounts for only a tiny fraction of the total cost of a weapons program. And every time that it discloses a fault in a new weapon that can be corrected before (instead of after) the production line begins to roll, the saving swamps the relatively trivial cost of the testing.

Proposal for Waivers of Operational Testing

Mr. Chairman, I cannot conclude without mentioning the pending proposal to allow waivers from current operational testing requirements. The draft I have seen would return the balance between the makers and the users of weapons to the lopsided inequality of a decade ago before this committee led the drive to level that balance by legislating independent operational testing.

The sweep of this new proposal is breathtaking. There is no apparent limit to the possible degradation or even abandonment of operational testing; the only description of the revised procedures is that they could be "different". Nor is there any limit to the importance of the programs subject to such procedural vandalism; these new provisions could apply to any program.

The draft stipulates four justifications for such waivers. The first would be if normal operational testing is alleged to be "unreasonably expensive." But, as I've noted, it can cost a lot more to fix a faulty weapon in the field than it could possibly cost to test it properly before it goes into production.

The second justification would be if normal operational testing is alleged to be impracticable". But the lack of any definition of the standards for impracticability is just an open invitation to hamstring operational testing.

The third justification would be in cases where normal operational testing would "cause unwarranted delay." But the question is delay in what? Delay in fielding a weapon, or delay in fielding a *combat-ready* weapon?

The fourth justification is so sweeping that I can only wonder why the drafters even bothered with the other three. This one would allow a waiver if normal operational testing would "be unnecessary because of the acquisition strategy for that system." As I read that language, it would let the Defense Department gut operational testing any time it wanted to by simply writing it out of their "acquisition strategy".

The draft does conclude with one restriction on such waivers: they would not apply to programs "beyond low-rate initial production". The clear implication is that operational testing would apply only to the "final exam", which this language would now defer to the end of low-rate initial production. As I noted earlier, operational testing should play its role from the very beginning of a program, and not just as some "final exam". If the operational tester's hands are to be tied until a weapon completes low-rate initial production, his only choice will be to run for cover because, by that time, the avalanche will be in full force.

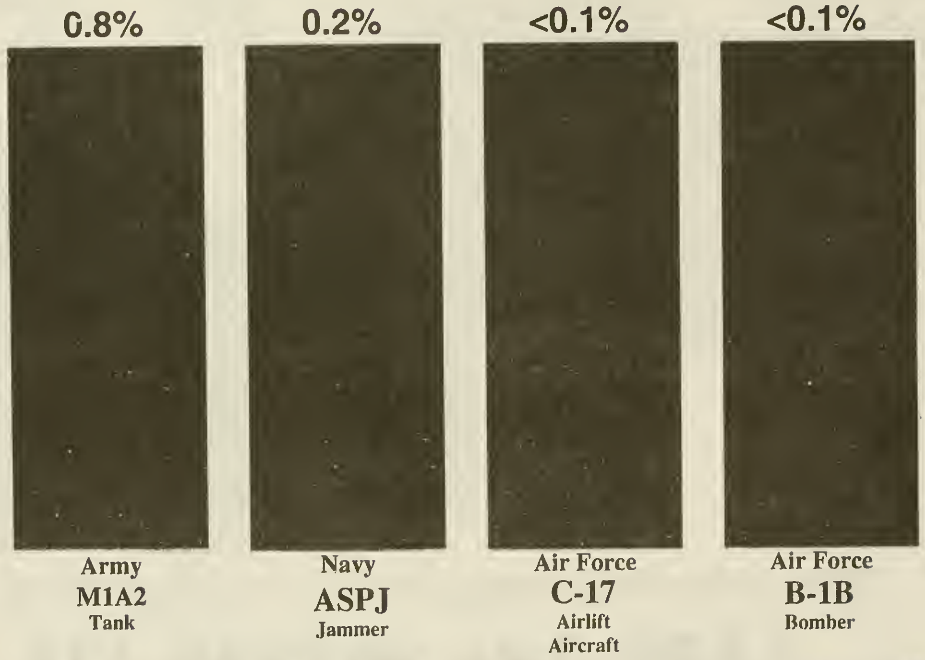
Mr. Chairman, this proposal is a loophole big enough to drive a DIVAD through.

Conclusion

In conclusion, Mr. Chairman, operational testing must be independent. It should be used from the beginning of a weapon development. It doesn't delay deployment of weapons that work, it accelerates it. It doesn't waste money, it saves it. And, I urge you, beware of proposals that would cripple the users' influence.

Is Operational Testing too Expensive?

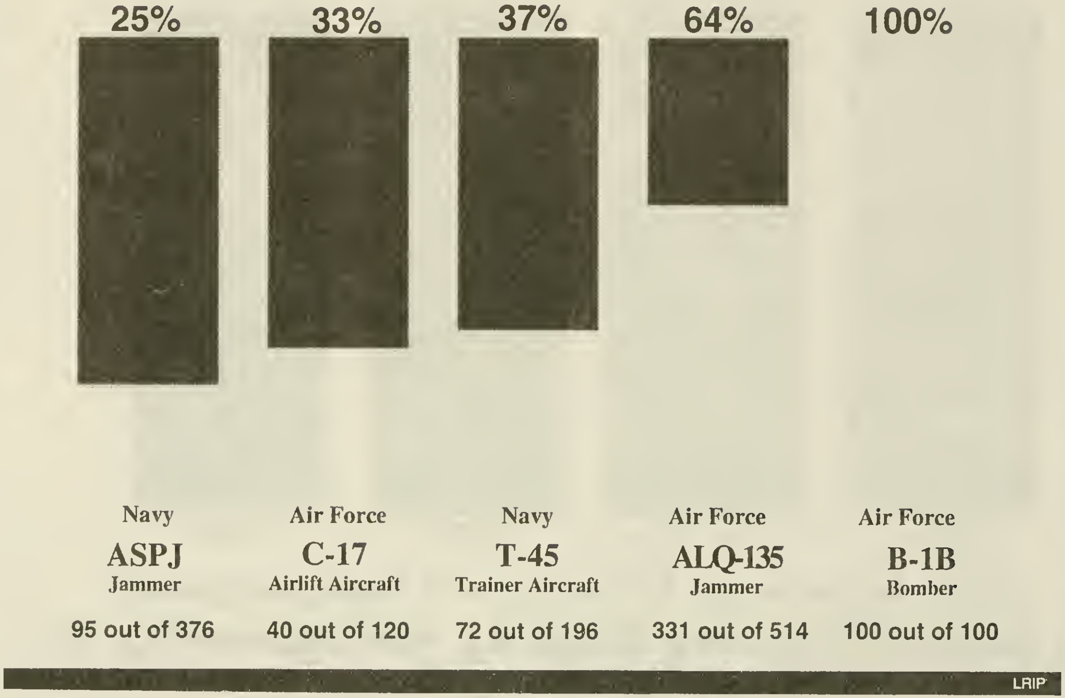
Operational Testing cost as a percent of total program costs



testing

FLY BEFORE YOU BUY?

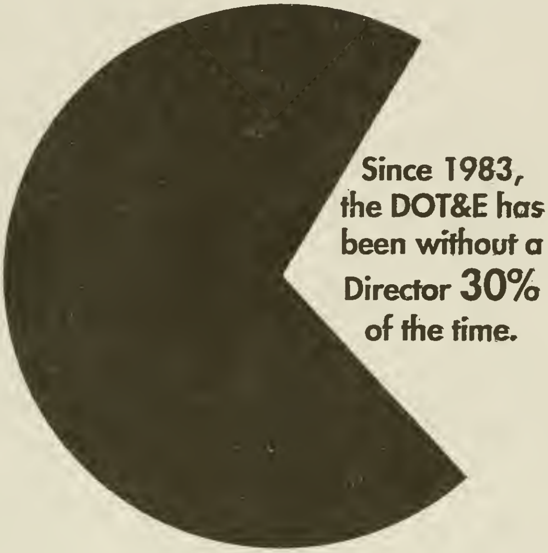
Percentage of Weapons Produced Before Operational Testing



BOSTON PUBLIC LIBRARY
3 9999 05982 921 6

A PENTAGON PRIORITY?

Operational Testing (DOT&E): An Office Without a Leader



Since 1983, the DOT&E has been without a Director **30%** of the time.

Vacancy Time	Reason for Vacancy
19 months—	Creation of DOT&E Office (Sept. 1983) until confirmation of Jack Krings (April, 1985)
5 months—	Resignation of Jack Krings (June 1989) until confirmation of Cliff Duncan (Nov. 1989)
14 months— & counting	Resignation of Cliff Duncan (Jan. 1993) until ???

ISBN 0-16-044450-0

90000

9 780160 444500